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Table of Contents

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ORIGINAL ARTICLES— PAGE.

An Address: What Medicine Owes to War and War Owes to Medicine, by RUPERT M. DOWNES, C.M.G., V.D., M.D., M.S., F.R.A.C.S. 73

Transurethral Prostatic Resection: A Series of Operations on One Hundred Patients, by J. W. S. LAIDLEY, M.B., Ch.M., F.R.A.C.S., and M. S. S. EARLAM, M.B., Ch.M., F.R.A.C.S. .. 80

REPORTS OF CASES—

Intramuscular Injections of Liver Extract in the Treatment of Pernicious Anæmia, by A. R. SOUTHWOOD, M.D., and R. K. WILSON 89

REVIEWS—

Diseases of the Thyreoid Gland 91

Defective Speech in Children 92

LEADING ARTICLES—

The Rockefeller Foundation 93

CURRENT COMMENT—

The Mineral Metabolism in Generalized Diseases of Bones 94

White Bile 95

ABSTRACTS FROM CURRENT MEDICAL LITERATURE— PAGE.

Physiology 96

Biological Chemistry 97

BRITISH MEDICAL ASSOCIATION NEWS—

Annual Meeting 98

Scientific 105

CORRESPONDENCE—

Antral Infection of Dental Origin 106

Treatment by Olive Oil Emulsion 106

X Ray Treatment of Acne 107

OBITUARY—

Leonard Redmond 108

Norman Charles Barber 108

DIARY FOR THE MONTH 108

MEDICAL APPOINTMENTS 108

MEDICAL APPOINTMENTS VACANT, ETC. 108

MEDICAL APPOINTMENTS: IMPORTANT NOTICE 108

EDITORIAL NOTICES 108

An Address.[1]

WHAT MEDICINE OWES TO WAR AND WAR OWES TO MEDICINE.

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PRESIDENTIAL addresses in this Branch have sometimes covered professional subjects of especial interest to the speaker, sometimes matters of import to the organization, economics or standing of the profession, sometimes a review of the happenings and tendencies of his year of office, and occasionally matters of history. It might have been thought that in such an epochal year of our Branch history a survey of what the recent annual meeting of the Association has meant to us and will do for us would be the most appropriate theme; but I felt that a little more time will make the repercussions more definite, and, furthermore, that perhaps we have earned a slight respite from medical politics. So I thought the more readily to interest the stout few who always form the audience at these annual occasions by some story concerning the subject that now is my chief interest—the medical services of the Army and Air Force—and in the brief period that has been available to find such a story in this year of grace, I decided that it might be profitable to review the influence of war and medicine on each other.

As Sherman, and no doubt millions of others, said: "War is hell"; nevertheless it is a biological necessity that has to be faced, and the history of the human race is largely written in war. What knowledge did our craft forefathers and what do we, the descendants of Æsculapius, owe to war, and what in turn has the same army of healers done to make the waging of war more possible?

[1] Read at the annual meeting of the Victorian Branch of the British Medical Association on December 4, 1935.

First of all we should from its earliest known beginnings trace as carefully as possible the evolution of the great complicated machine which now serves the health of soldiers in the field, but time will not permit of doing this in detail. Let us, however, take notice of the growth of this machine from a feeble thing of few parts in which the personality, intellect and character of the individual was the dominant factor, to the complicated organization of mutually dependent workers that with much oiling by experience has become the more or less smoothly running engine—a modern army medical service. In the past names such as Theodoric, Paré, Larrey and McGrigor stand out in their periods as men to be wondered at; yet the lot of their sick and wounded could not be compared with that of their successors in the last Great War. The individuals responsible for this improvement, however, are so many and of such equal achievement that no single man could win that fame that permits his name to go down among the great in history.

As long as mankind has existed there has certainly been war; war means wounds, and wounds mean people to treat them. The earliest evidence of treatment, going back almost to the first known writing in history, is found in one of the most fascinating and delightful documents any student of history could hope for, the Edwin Smith papyrus. Named after its discoverer, who obtained it at Luxor in Upper Egypt in 1862, it lay undeciphered until 1928, when it was published.[1] It is a copy by an unknown physician of the eighteenth dynasty in the seventeenth century B.C. of a surgical treatise of the Pyramid Age written at least one thousand years earlier. There is some reason to conjecture that the author may have been the first known physician, Imhotep, a great personality of the third dynasty, about 3000 B.C., who after his death was deified and worshipped by the Greeks as Asklepios, by the Romans as Æsculapius, the God of Healing. He was high priest, vizier, architect and philosopher to the great king Zoser of that dynasty. From his description of cases, it is obvious that he followed the wars. His methods of treatment were founded on observation and thought, and are in sharp contrast to those of his unknown copyist of some thirteen hundred years later, whose principles of treatment appearing in the same document depend on incantations, charms, magic and weird medicaments. All of the fifty-eight cases described are dealt with in most orderly fashion—first the title, then the examination, followed by the diagnosis, treatment and in some cases a glossary of the meaning of terms that had gone out of use in the intervening years. The wounds and injuries are described in order from the head downwards, while in the different areas superficial and slight wounds precede those penetrating more deeply. It is interesting to note that surgical operations were considered only as part of the examination, nothing that did not include application of medicaments being dignified as treatment. In all cases a decision as to its possible cure is given in one of the formulæ "an ailment that I will treat", "an ailment with which I will contend", or "an ailment not to be treated". Imhotep knew something of cerebral localization to the opposite side of the brain, of the spine as a nervous centre, of the existence of a cardiac system and the pulse, and was very close to a knowledge of the circulation of the blood. He dissected, made use of his finger as a probe, describes what can be recognized as tetanus, and depended on Nature considerably for cure. Some of the methods, which make us wonder whether anything is new, will be mentioned as we go along.

We next learn of what corresponds to our present-day regimental medical officers in the Trojan War, about 1200 B.C. Again Hippocrates in the fifth century B.C. alludes to them several times, one being his son, Thessalus. The Romans, however, until much later made no use of physicians in their armies, apart from those whom the commanders or other officers took into the field for their private use. Pliny says that they were none the worse off for the lack. It appears that about the first century B.C. they established a regular medical service consisting of both physicians and tents for the sick, the latter forming hospitals or valetudinaria, the ruins of one of which are found in a camp of the first century A.D. The first record of the forerunner of the modern field ambulance is in the Roman Army in the sixth century; after that they seem to have gone out of fashion for some centuries. While Henry of Navarre at the end of the sixteenth century established "portable hospitals" in addition to "fixed hospitals", the former being christened "ambulances", they do not appear in British history till the wars of William III and Mary, when they were called "marching and flying hospitals" and included springed ambulance wagons. They disappeared, however, after Marlborough's campaigns which ended in 1711 until the nineteenth century, when McGrigor persuaded Wellington, in the Peninsular War, to allow him to form regimental, in addition to base hospitals. Napoleon's great surgeon, Larrey, had, however, reintroduced "flying ambulances" a few years earlier. His ambulance cadre or division, comprising a personnel of 340 and including 12 light and four heavy cars, was ahead of anything of the kind in any war, even including the South African, up to the Great War. In these the wounded after Eylau in 1807 were transported to châteaux more than fifty-five leagues distant. There was little advance in the English Army in the Crimea, nor till the South African War, when "bearer companies" and "field hospitals" came into being. The next step was their amalgamation after this war into field ambulances, which have undergone considerable modification and additions both during and since the Great War (be it noted that a similar name was given a century earlier to the Napoleonic Wars) into units which provide for operative and medical treatment, as well as wheeled motor transport for the sick and wounded from the battlefield. The former fixed hospitals are now known as general hospitals, while an intermediate casualty clearing station has been introduced and convalescent depôts for the healed. The springless carts for the wounded have grown into motor ambulance convoys, hospital trains, hospital barges, hospital ships and aeroplane ambulances. These, with units for bacteriological and chemical

[1] It is a sad coincidence that we read in the cablegrams of the death of the translator, the famous Egyptologist, Brensted.

examination, for the supply of every variety of medical and surgical equipment and the manufacture of splints, make up the modern army medical service.

Contrast the few lone physicians of earliest history with the mobilization, almost complete, of the whole medical profession of Great Britain, Germany and France and the hundreds of thousands of rank and file of the last war.

My purpose is to review whatever knowledge in the art of healing and in prevention of disease has come from the long pageant of army physicians. Since soldiers in the main are the pick of the community, young and healthy, and through their calling prone to injuries, it is natural that surgery is the branch of medicine that has most benefited, and traumatic surgery in particular. In fact nearly all early surgery was war surgery, and very little advance was made apart from war. In England at least, training in surgery was obtainable only in war until the middle of the eighteenth century, when civil hospitals became numerous. The charter of the Royal College of Surgeons of Ireland includes "for the purpose of training surgeons for His Majesty's army".

It is not possible in this paper to survey in any detail the progress of military surgery, but it is noticeable how periods of enlightenment were followed by those of ignorance and how often discoveries are rediscovered. One may cite Larrey, who practised excision of wounds, a practice now looked on as probably the greatest surgical advance of the last War. Then at the beginning of the nineteenth century ulcers of the leg were a great cause of invalidism in the army till an army surgeon, Baynton, began a method of strapping with adhesive plaster and bandaging, by which the disability was completely mastered. We are just discovering this.

The surgeon who may have been Imhotep nearly five thousand years ago used splints not only of wood, but of plastered or glued linen; that has a modern sound. He padded wounds after suture with fresh flesh—no doubt to stop hæmorrhage—a method we relearnt in the Great War, and I venture to say the use of which as a hæmostatic is known now to but a small proportion of our profession. He also treated a fractured clavicle by the most refined modern method of placing the patient on his back with a pad between the shoulders. As to wound treatment, the basis of all war surgery, the Greeks in the time of Hippocrates practised unknowingly much asepsis, boiling or filtering the water used to wash wounds, while the surgeon's hands and nails were kept clean and wine was used on wounds as well as poultices around, but not on, the wounds.

Prior to the sacking of Byzantium by the Saracens in 640, surgery as known to the Greeks and Romans was based on scientific reasoning. Thereafter it lapsed badly, and fatalism and magic replaced science for two hundred years, although the writings of the Greeks and Romans had been kept, until the renaissance of surgery in southern Italy, where the tradition of Greek medicine had not been entirely lost.

As late as the thirteenth century, however, when wounds were caused by arrow, sword, lance or dagger, treatment was in the nature of applications of salves, ointments, powders and decoctions, while suppuration was considered normal and necessary for proper healing; if there was none, medicaments were used to promote it in accordance with the teaching of Galen. The wars of this period produced a remarkable set of surgeons. Theodoric, an Italian, denied the "laudable pus" theory and returned to dressings soaked in wine. William Salicet, another Italian, sewed up wounded large intestine "as furriers sew a skin", replacing it in the abdomen, and found that it healed. De Mondeville, the pupil, went further: he removed foreign bodies from the chest, closing the wound at once. De Chauliac in the next century returned to ointments and meddlesome surgery as by the injection of medicaments and the practice in the case of chest wounds of leaving them open; he threw wound treatment back, never to recover completely till the time of Lister, although Paracelsus, another army surgeon, at the beginning of the sixteenth century was an aseptist.

With the discovery of gunpowder at the end of the thirteenth century wounds became much more unpleasant, and the inflammation that usually resulted was put down to the effect of the gunpowder. The recognized treatment in the hope of preventing it was cauterization with boiling oil. It is a well-known story how Paré in 1531, running out of oil after his first battle, found to his great relief that the wounds not treated with oil did far better than the others. Hieronymus Braunschweig in 1497, in the first known article on gunshot wounds, included in a book on war surgery, insisted repeatedly that wounds could not heal without cleanliness. He also held what is perhaps insufficiently realized nowadays, that firearm missiles may sometimes be left *in situ* without any harm. He had evidently, too, knowledge of human nature, for one of his methods of stopping bleeding was to put the patient in the dark so that he could not see the blood and tell him that it had stopped. Ambroise Paré in the sixteenth century was one of the greatest surgeons in history. He is usually credited with the invention of ligature of arteries, but incorrectly, as this procedure appears in the writings of Celsus in the first century A.D., while de Mondeville was also familiar with it. A man of great ability, Paré did more in the actual practice of surgery and in discarding the unpractical therein rather than in adding to it. In his time physicians were not allowed by the church to shed blood, consequently surgeons were looked on as of an inferior caste and formed an unorganized trade. By his efforts their standing was improved before his death. It would appear that he recognized flies as carriers of infectious diseases, and no one prior to him seems to have done so.

It is rather striking that in an age when such preponderating faith was placed in particular remedies, Paré should have realized what even now is so often forgotten, namely, that there are few diseases in which the physician brings about cure; he merely assists the natural processes of repair and resistance. This he showed by his oft-repeated conclusion to a case: "I dressed him and God healed him."

John Hunter at the beginning of his career was an army surgeon, and in the Belleisle expedition,

observing carefully the changes appearing in wounds, evolved many of his impressions regarding inflammation. In 1791, nearly thirty years later, he was selected from the ranks of the civil profession, as was the custom at that time, to be Surgeon-General and Inspector of Hospitals, and died as a result of a disagreement with one of his colleagues. Apart from him no one appears, after Paré, to have achieved very much until the appearance of Larrey, Napoleon's surgeon, often spoken of as the greatest military surgeon that ever lived. Not only did he make great improvements in the medical service of the French army—such as the establishment of what corresponds to the modern forward operating centre—but his surgical judgement and acumen were so great as to put him far ahead of his times. Indeed, when one reads of his principles and methods one cannot help feeling that he was little behind the best of present-day practice with all its additional knowledge. He excised wounds, removed foreign bodies, ligated arteries, aspirated and sealed chest wounds, used the skin of a newly flayed sheep for the same reason as we now use a hot-air bed in shock, avoided strong antiseptics in wounds unless they were sloughing, knew the value of good food and rest in the prevention of fatigue, knew the principle of rest in inflammation, of drainage, trephined for just the same head injuries as we do now (including post-traumatic disabilities), and operated on empyemata. In addition, his surgical technique must have been something to marvel at; at the battle of Borodino he is credited with 200 amputations in twenty-four hours. He was the first to perform a disarticulation at the hip joint, which Guthrie copied later at Waterloo. He has truly been called a benefactor of the human race.

In the same period of history many other army surgeons of different nations evolved methods of enduring value and made discoveries, such as Dupuytren, Nélaton, Langenbeck, von Graefe, who was surgeon-general in the German War of Independence and the founder of modern plastic surgery, and Pirogoff, the greatest Russian surgeon and one of the greatest war surgeons of all time, who introduced female nursing to the army in the field in the Crimea. All of them are known to surgeons the world over as a result of their contributions to surgery. It appears to be no more than a coincidence that in the Crimea also Florence Nightingale on the English side did so much in the provision of trained female nurses in the base hospitals, following this up by establishing the modern system of trained nursing under which nursing became a profession instead of a calling. She did not, however, initiate female nursing in armies; this apparently lies to the credit of the Knights of Saint John, of Saint Lazarus and the Teutonic knights who enlisted the services of women in their hospitals during the Crusades.

Since the Crimean War supermen in the field of war surgery and medicine have been few. Yet in the American Civil War the occurrence of "soldier's heart" was noted by Da Costa as due to such strains as may occur in civil life. The Franco-Prussian War might have supplied a testing field for Lister's theories of antisepsis and asepsis, so recently put forward, but his methods were then so complex that very little attempt was made to try them. The South African War provided the incentive to find some means of reducing the crippling wastage from enteric fever. On the other hand the relatively non-lethal rifle bullet then in use and the infrequency of shell wounds somewhat delayed the progress of treatment of wounds leading to the adoption of a conservative plan of treatment. The Russo-Japanese War provided the opportunity for the Japanese to show the world that with strict rules and methods of hygiene deaths from sickness could be kept lower than those from battle, an example of some influence in health organization in civil communities and successfully followed by the British in the Great War of 1914 to 1918, to which we now come, and in which deaths from sickness were less than those from wounds in all campaigns except those in Macedonia and Italy.

In the Great War it may be said that, while it was marked by no great discovery of principle in medicine, the benefit to mankind in many directions was enormous. Perhaps the greatest results followed the unprecedented opportunity of mass investigation of the value of methods up to that time improperly understood, under conditions controlled and ideal for observation—in other words, the greatest human vivisection experiments in history. The outstanding example of this was the preventive inoculation against typhoid and paratyphoid fevers. As a result these infections which have been such scourges in past wars, notably in the Spanish-American War, where 20% of the troops were affected and 1·5% died, and the South African War with only slightly lower proportions, in which 55,000 cases occurred and over 8,000 soldiers died, as well as in others too early for any statistical records, were almost abolished. In France in 1918 the morbidity was only one in 5,000 and the death rate one in 100,000. In the worst and most uncontrollable theatre of war, Gallipoli, the incidence rate was 8% and the death rate under 0·3%.

No such convincing proof of the value of a method applicable to a disease always prevalent in some parts of the world could be obtained apart from war conditions.

The same applies to the prevention of tetanus, for, though it was carried out before the War to a limited extent, the tremendous lesson learned therefrom has resulted in its widespread use in the injuries known as likely to be followed by tetanus, a variety becoming increasingly common with the havoc caused by motor transport.

Not only did the War give the opportunity to explore such methods, but it caused the universal dissemination of their value through the vast army of doctors that was brought in contact with them. For it is a long journey from the discovery of a useful method to its recognition under normal conditions by the medical profession as a whole. And not only were new discoveries broadcast to the profession, but war service acted as a great post-graduate training in many subjects and methods of which much of the profession had insufficient knowledge. One of such was orthopædics, a branch which many avoid, with the result that patients do not

receive all the treatment that they might. It is largely to this that we owe the popularity of bone-setters and osteopaths, with the resultant development, in defence, of manipulative surgeons. A great deal was learned and taught regarding the repair of injuries to the limbs, treatment of nerve paralysis, artificial limbs and the like. The advantage of segregation of particular injuries and diseases in special wards or hospitals, such as fractures, chest and head wounds, meningitis, functional cardiac disorders and empyema was very manifest. The special fracture, heart, diabetic, rheumatic, tuberculosis and other clinics that are becoming such a feature, and a commendable feature, of modern medicine, owe their origin in no small degree to the example of this specialism of the war. Teamwork, too, which we all recognize as productive of the best results, arises from the experience of the resuscitation, operating and various medical teams of the War. Another gain to the profession was the inculcation of order and method derived from the discipline necessary in the army machine. Though in this, as in all other wars, there were many more cases of sickness than of wounds, it was in the field of surgery rather than of medicine that the most striking advances were made; and it is somewhat singular that, though a tardy recognition was accorded by the more enlightened in previous wars to the value of medical science in the prevention and treatment of disease, it is only in this last Great War that combatant personnel have come to a recognition of the value of good and prompt surgery in saving life and preventing wastage. There is practically no branch of surgery which has not directly or indirectly felt the benefit of war surgery. Consider what we know practically regarding the prevention of shock that we did not know before. Warmth, rest and tranquillity of mind before operation. And the treatment of shock and loss of blood. Nothing fundamentally new, but the wide knowledge of the wonderful life-saving value of heat, morphine, and above all, blood transfusion. Blood transfusion, instead of being confined to a few and a source of wonder to the laity, is now practised by the many whenever there is the slightest call for it. Certainly the technique has been much simplified since the War, but undoubtedly numberless lives have been saved through the post-war dissemination of the knowledge of blood transfusion, both before, during and after operation, and in hæmorrhage, the anæmias and as a general stimulant in exhausting and septic diseases.

There was a vast difference in the methods and results of treating wounds at the beginning and at the end of the War, and the knowledge gained is well applicable to civil surgery. At the outset a free use of antiseptics in the wound, as well as around it, was the approved method, and it was not long before the harmfulness of this treatment was recognized, as Hamilton Russell knew and taught before the War, and, as has been mentioned, did Larrey. Several other methods followed this, some of which persist, but the principle of aseptic rather than antiseptic treatment of wounds combined with early removal of foreign bodies and destroyed tissues which is included under the term excision of wounds, warmth and unavoidable fatigue have brought us to the high-water mark of treatment of war wounds up to the present. And when we think of war wounds, we must picture not a simple cut, but a bruised, mangled, lacerated, dirt-ingrained, blood-starved welter, often associated with splintered bone.

Excision of wounds, which brought about such an entire change in the incidence of sepsis, and particularly of gas gangrene after wounds, and which saved countless lives, is one of the greatest legacies. It is not generally known that the originator of this method, though practised by Larrey and lost sight of, was a Melbourne graduate, E. T. C. Milligan. This procedure has a wide application in the civil surgery of injuries, and is now in every-day use.

Almost everything that is known of that dreadful disease, gas gangrene, was learnt in the Great War. Though it undoubtedly was the cause of great mortality in wars of the past where we read so often of "hospital gangrene", and of one instance in particular related by Paré when at the siege of Metz in mid-winter of 1552 practically all the wounded died, in civil life it was looked on as a rare disease of uncertain ætiology. We see more cases nowadays following industrial and motor accidents, and are in a better position to treat it, knowing that it is most prone to appear in damaged muscle tissue, especially where the blood supply is interfered with, and that it is mostly confined to single muscles or groups of muscles and must be treated by excision of the affected muscles. The anti-serum prepared late in the War for the specific organisms is in some cases very efficient; since the War it has been used with success in other conditions such as intestinal obstruction and peritonitis. There is some evidence that the serum may be valuable prophylactically, and a possibility that an anatoxin may be used to produce artificial immunity.

An early and valuable sign of the development of gas gangrene was recognized in the rapid and otherwise inexplicable increase of pain in the wound accompanied by marked swelling.

In the field of chest surgery the use of X rays was developed to recognize the amount of fluid and collapse of lung, the value of aspiration in hæmothorax became known, and the necessity for closing sucking wounds, while surgeons have become familiar with the manipulation of thoracic organs inside the open chest. Prior to the War this was a *noli me tangere* area, except with complicated apparatus like the Sauerbruch and other pressure cabinets. We learned the readiness with which the wounded heart can be repaired and intracardiac foreign bodies removed. From the huge streptococcal post-influenzal empyema epidemic in the American camps we gained a knowledge of the fatality of early thoracotomy in such cases and the limited application of the principle of repeated aspiration prior to rib resection in the commoner pneumococcal empyema; and also of the danger of too open drainage.

In the field of brain surgery advances were mostly in technique such as local anæsthesia and the control of hæmorrhage by the "postage stamp" muscle application. But the principles were established of thoroughness of cleaning up, the necessity of removal

of foreign bodies, drainage and post-operative rest. We recognized that the brain has definite powers of resistance to and recovery from infection, and it was the same in regard to the pleura and synovial membranes. A great deal also was learned regarding cerebral localization. In joints, the advisability of closure and the harm of drainage tubes were established, but this now seems to have been to a certain extent forgotten. The improvement in the treatment of fractures, remarkable as it was, was particularly notable in regard to the femur, the cause of high mortality in the early days of the War, where the Thomas splint replaced the unhappy Liston, and the efforts of Sinclair and Pearson showed what improvement in results could be brought about by specialization, thoroughness and team-work. Should the specialized application of preexisting methods advocated by Böhler prove to be permanently acceptable to surgeons as an advance in treatment, this may be credited to war, for Böhler was a war surgeon impelled by the bad results in fractures as commonly treated to try for something better.

A tremendous amount was learned about the possibilities of plastic surgery of the face, and wonderful results achieved that were unheard of before the War. The application of this in civil surgery, though somewhat limited, is of definite value, and we owe it largely to Gillies, Newland and Maclure. The use of sliding muscle flaps, as practised in wounds of the chest and abdomen, must also be mentioned. Amongst minor gains is the application of maggots in acute osteomyelitis, the result of observation by an American surgeon, Baer, of the results in compound fractures of femora which became infested with maggots. It may be noted that Larrey was aware of this.

As regards venereal disease, no new methods arose, but much was learned from mass observation. Prevention of gonorrhœa was first attempted on a large scale and established; this was far from a new method, for Salicet practised it in the thirteenth century. Prophylaxis of syphilis was shown to be simple and successful, and the necessity for repeated courses of treatment and careful following up over a long period became more definitely understood. The Navy was responsible for much of this. The conclusion emerged from the large quantity of cases that present methods of treatment are very satisfactory.

When we turn to pure medicine, we do not find so many advances to signalize. Certainly a new disease, trench fever, was recognized and its cause discovered, but this seems to have no civil application. Trench nephritis, previously recognized in the American Civil War, gave an opportunity for observing acute nephritis in the mass, with the result that we know more of its prognosis, course and classification and the distinction from chronic degenerative and arteriosclerotic nephritis. Trench feet comes under the same category, a troublesome condition also referred to by Larrey. From the study of functional heart disabilities a great deal was learned, and again, not for the first time in war; and a large education was given to the profession in the distinction between functional and organic lesions and the vast difference in prognosis.

In psychiatry an unheard-of field of observation presented, and it was found that the War brought about little increase in true psychosis or insanity, though an enormous number of cases of psychoneurosis were treated, showing that even in war the psychic element is the dominant factor; for example, shell-shock.

We may claim the production of Haldane's oxygen apparatus and its modifications applicable to pneumonias and other lung conditions, carbon monoxide poisoning and heart failure, as due to the necessity of treatment of poison gassing.

The discovery of the cause of bilharziosis, so terribly prevalent in Egypt, by Leiper, and its curative treatment by Christopherson, both army medical officers, were of far-reaching importance. Though bilharziosis has not become endemic in Australia, we may consider it good fortune that it has not, as all the necessary factors for its establishment were present after the War.

Much was learned of the treatment of the dysenteries, of bacillary dysentery by the sulphates and antiserum, and of amœbic dysentery by emetine, as well as a great deal about the microscopic diagnosis in both.

Malaria was the greatest single cause of sick wastage, and something was learned of details of treatment and still more of the methods of prevention of mosquito breeding.

Practically all we know of *encephalitis lethargica* has been discovered during and since the War. Though it has probably occurred before, in England perhaps in 1685, it was not recognized until 1917. It is one of a group of diseases to which cerebro-spinal fever and poliomyelitis belong, in which the pathological agent is frequently present in the human being without causing an attack of the disease until the balance between the virulence of the virus and the immunity of the individual goes in favour of the virus. It is probable, too, that as was found in the case of cerebro-spinal fever, an epidemic does not occur until the carriers reach a definite percentage—in the case of cerebro-spinal fever about 20%. A far more common and important condition is avitaminosis, and we are indebted to the Great War for a great deal of our present knowledge of its effects and treatment, even if unhappily much of it has come from study of the effects of starvation of children in beaten countries and of prisoners of war.

In anæsthetics the use of local injections was popularized, and the unfavourable after-effects of long ether anæsthesias were recognized as well as the important advantages of nitrous oxide, already well known in the United States, but very little in Great Britain and Australia.

Apart from a chronological survey of the benefits arising from war, it is well recognized what a difference has been made to life in the tropics by the efforts of army surgeons. Most of the insect vector discoveries are a result of military organization, and the methods of avoidance of tropical diseases are due to military hygienists. Malaria, one of the greatest causes of illness and death in modern history, a determining factor in the history of the world, the cause—partial at least—of the decay of Greece and Rome owing to

the slow but steady infection with the malignant tertian variety, the cause of the disappearance of the Moghul empire and the kingdom of Ceylon and the winner of many wars, was found by Laveran to be caused by a plasmodium. In 1897 Ross, labouring in the face of official opposition, discovered its transference to man by the anopheles mosquito, and opened the way to its prevention, while the Spanish conquests in South America had in the time of Ferdinand and Isabella brought quinine back to Europe.

Yellow fever, for centuries the cause of fearful mortality in the Americas, was found by Major Reed to be due to the stegomyia mosquito. Gorgas, who later made the Panama Canal possible by his fight with malaria, in eight months in 1901 freed Cuba of yellow fever by attacking the stegomyia and isolating fresh cases, and this successful eradication started by army surgeons has been widely and successfully adopted for both yellow fever and malaria.

Rogers, another army surgeon, was responsible for the valuable hypertonic treatment of cholera which has saved many lives, a method applicable to the heat cramps occurring in hot mines when water is drunk too freely, and to the loss of chlorides in intestinal obstruction.

One of the great health problems of life in the tropics has always been the effects of high solar temperature which manifest themselves in different forms commonly known as heat exhaustion, heat stroke and sunstroke. There has always been a great deal of confusion as to the exact meaning of these terms. An excellent opportunity of controlled investigation in the mass presented itself in Mesopotamia, and, while it cannot be said that finality has been reached, a great deal has been learned on the subject and a number of empiric beliefs have been demolished. Of still more importance has been the recognition of certain premonitory symptoms of heat stroke which, if followed promptly by the methods of treatment there worked out, has brought about the position that fatal results can almost always be avoided. With this let me bring the account of the benefits of war to a close, though the field has but been skimmed.

Enough has been said, I think, to establish my thesis that medical science and practice have had through the ages much for which to be grateful to war. Let us hope for an era when progress may be equally rapid without the evils of war.

If now we turn to the other side of the picture and ponder on the benefits of medical progress to war, we are brought up by the wonderful amount of knowledge now available to a commander in the field to keep his army intact as compared with the general of all past ages. As many wars and battles, if not more, have been decided by disease than by force of arms. Let us mention some of the most striking out of the many. Sennacherib, the Assyrian, in the eighth century B.C. with his host was struck by the "Angel of the Lord" so that in a night he lost 150,000 men and was forced to depart. Probably this was some epidemic. When Xerxes was marching on Greece with an army of 800,000, the Greeks were saved by an epidemic—perhaps plague and dysentery—which attacked him and which forced him to return to Persia, without fighting, with less than half a million men.

The Crusades furnish perhaps the most dramatic known instances of disease. The first, in 1098, gives us a force of 300,000 besieging Antioch and then Jerusalem, reduced in two years to some 20,000 almost entirely by disease. Of half a million who set out on the second Crusade, disease accounted for all but a handful, if any, who returned to Europe. Plague, and not the Saracens, prevented the fourth Crusade from reaching Jerusalem. In more recent times the French in Haiti lost 22,000 out of 25,000 men, enough to allow the negroes to turn them out of the island, while the English at Cartagena in one of the hopelessly mismanaged expeditions that distinguished our military history of the eighteenth century, lost nine out of every ten men that set out. The failure of the Walcheren expedition from malaria is perhaps the best known example of this kind in English history.

In these and other examples of disease-won campaigns it is not always possible to identify the epidemic, but the chief killers we recognize have been plague, smallpox, typhoid, typhus, malaria, dysentery and possibly influenza. Of plague, which in the fourteenth century destroyed perhaps twenty-five million people in Europe, we now know the cause and how to prevent, if not to cure it. Smallpox we can more actively and easily control, given the time and material. Dysentery, too, with much trouble can be checked, but influenza, whether of recent or ancient origin, is beyond our powers both of prevention and treatment, and this alone of all great epidemic diseases caused more loss of human life in the great world epidemic of 1918 than did battle casualties of the Great War. The control of typhoid and malaria I have laid claim to as largely a result of war.

In the view of many typhus fever has been the greatest killer in history. It has decided wars, ended them without decision, and prevented wars, yet war did nothing to rid mankind of this scourge. Not until 1909 was it demonstrated by Nicolle that the louse was the carrier of typhus, the knowledge that the virus lay in the Rickettsia bodies and that in some circumstances the rat flea could act as host for the virus following in the ensuing years. It appears most probable that typhus fever came from the East to Europe. When it first made its appearance is conjectural; with the lack of medical knowledge of the early middle ages this is not surprising, for the disease does not display particularly distinguishing characteristics. Even in present times it remains undiagnosed. In 1898 a disease known as Brill's disease appeared in the north-east of the United States of America and continued for twenty-eight years before it was recognized as typhus by a doctor who was familiar with its manifestations in Europe. Then, too, in early times the descriptions of epidemics of obviously more than one disease make their recognition nearly impossible. It has been thought by some that the Athenian fever of the Peloponnesian War was typhus, but this

cannot be regarded as proven. The first description of an epidemic which can reasonably be recognized as typhus was in 1083 in Italy, and it is not again in evidence till the end of the fifteenth century. Its first known great political effect was in 1528, when it caused the abandonment of the siege of Naples by the French and brought the Papal State under the dominant influence of Spain and thus altered the subsequent history of Europe. From that time onwards we find it a companion of the constant wars that ravaged Europe for the ensuing centuries, playing a greater part than the arms of the combatants in slaying friend and foe, frequently deciding the issues between the warring states and decimating the unfortunate civilians.

It is a remarkable and largely unexplainable phenomenon that in the last and greatest of wars, with the exception of the outbreak in Serbia in the early months which so checked the Austrians in their invasion, the disease was practically non-existent in the millions fighting in Western Europe. The louse was as constant as in other wars, and the cause of other diseases, but for some unknown reason typhus did not appear in circumstances so favourable for its spread.

Had it done so, the discoveries of medicine had placed in the hands of the armies the knowledge to control the ravages of the disease so apparent in the past, even if not yet to cure it. Perhaps a cure may result from other wars.

But apart from disease medical knowledge has done much to prevent that all-important loss of man-power by teaching what is necessary in the constitution and amount of the soldier's food ration if he is to maintain his strength and resistance to fatigue, loss of morale, and disease. Scurvy has been banished, the voyages of Captain Cook being not without influence in this achievement, and beri beri and pellagra which became almost universal in the Turkish army in Syria in 1918, can be avoided. None the less proper clothing, amusement, rest and cover from the elements such as of old were deemed necessary for his steed or hound and not for his men, are now by experience and precept as great a necessity for a true commander as are training and munitions. For this, medicine must take some credit. And last of all prevention of sepsis in wounds, however perfect by empiric knowledge, could never have persisted had not its true cause been patiently and certainly unveiled.

Perhaps some day we may traverse the path of learning still further and find what manner of disease it is that causes man to go to war on man.

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TRANSURETHRAL PROSTATIC RESECTION: A SERIES OF OPERATIONS ON ONE HUNDRED PATIENTS.

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THE development of transurethral prostatic resection represents the latest advance along a course which modern urology has consistently followed. This is the elaboration of technical procedures by the employment of which a progressively larger proportion of patients may be given adequate surgical treatment without recourse to open operation. The operations of litholapaxy and transurethral fulguration of vesical papillomata have long been everyday procedures, and now this tendency away from open surgery has gone a step further in the attempt to relieve all of the various types of vesical neck obstruction by transurethral methods.

Actually, transurethral surgery was the original means of attack on prostatic obstructions. Lafaye, in 1756, by means of a stylet introduced through a catheter, deliberately tunnelled through an enlarged prostate which was causing complete obstruction; the false passage persisted and the patient died ten years later. This procedure was recommended and practised by John Hunter and others, but was finally abandoned as being too dangerous. The first regular procedure was established in 1834 by Guthrie, under the name of "division of the bar at the neck of the bladder", and a few years later, as a result of work along the same lines, instruments termed prostatomes and prostatectomes, used much in the same way as the internal urethrotomy knife, were designed and used by Mercier, d'Etoilles and Civiale. The first procedure, however, the application of which was at all widely practised, was that introduced in 1873 by Bottini of Pavia, who, by means of radiate application at the bladder neck of his galvano-caustic incisor, tried to avoid the hæmorrhage associated with earlier procedures. Apart from improvements on this method, there was no further advance till 1909, when Young introduced his prostatic bar excisor or "punch".

In the meantime, however, prostatectomy by open operation had been introduced and practised, with much better results than those obtained by any of the transurethral operations in use, so that these fell into disuse and prostatectomy became the operation of election for all cases except a minority where the nature of the obstruction lent itself to removal by Young's punch. Median bar and early middle lobe could be attacked successfully with the punch, but classical hypertrophy could be treated satisfactorily only by open operation.

After a considerable period, however, in which matters remained in general principle more or less

stationary, a fresh impetus was given to the exploitation of transurethral surgery by the development of a high frequency current which, when passed through a wire loop, would cut tissue under water. At the same time progressive improvement took place in the optical system and mechanical design of the operating cystoscope. There are now in existence several types of instrument with which obstructive tissue at the bladder neck can be removed under vision. That in most general use has been the Stern-McCarthy visual prostatic electrotome, with which the obstructing portion of the prostate is gradually pared away in a series of cuts by means of a wire loop, controlled by a rack and pinion, and through which a cutting diathermy current is passed. Bleeding points are sealed off by changing to a coagulating current as occasion arises, and the entire operation is carried out under vision. After the operation an indwelling catheter is left in the urethra for four days, and the patient usually returns home in a week or ten days. As a result of these technical developments transurethral surgery has in recent years been applied to the treatment of vesical neck obstructions of all kinds as an alternative, preferable, in the eyes of the operator and of the patient, to prostatectomy.

Whenever any new form of therapy is introduced a division occurs into various schools of thought. The first school accepts it without reservation and concludes immediately that the ideal method of treatment has been found. The second is conservative and is most unwilling to adopt it and to forsake those methods which have served so well in the past. Still a third group exists, the members of which accept the new procedure with a varying degree of reservation, make a careful selection of cases and apply it to some proportion of their patients. In the first group, as far as prostatic resection is concerned, are various eminent urologists, such as Kretschmer, of Chicago, who has reported a series of 495 patients who have undergone resection with satisfactory results and a mortality of 3·26%. During the period in question only one patient underwent open prostatectomy. Again, Ballenger, Elder and McDonald, of Atlanta, Georgia, state after a series of 144 transurethral resections that "we now believe that seldom if ever again will we do a prostatectomy". In the second group, on the other hand, is Hugh Young, who considers that there still remain "a large number of cases of prostatic hypertrophy, especially those with medium or large sized lateral lobes, in which prostatectomy is a better, safer and more permanently curative operation than transurethral resection". In his clinic the mortality in a series of 2,800 perineal prostatectomies has been 2·8%. Into the third group probably fall most practising urologists.

Thus there is still wide divergence of opinion regarding the exact place which should be taken by transurethral resection in the treatment of prostatic obstruction. To a certain extent the initial enthusiasm for the operation has waned, and in many quarters it is condemned as unsuitable for the treatment of any but a very small proportion of patients requiring surgical attenion, either by surgeons who, after trial, greater or less, have failed to obtain satisfactory results, or by others who have made little or no trial, believing the principle of the method to be surgically unsound. In Australian literature little attention has so far been paid to the subject. In two publications emanating from New Zealand the procedure is regarded with favour, while the consensus of Australian opinion appears to tend rather in the reverse direction.

When the method was introduced we decided not to condemn it without fair trial, but to reach some conclusion, in the light of personal experience, as to what results could be obtained by transurethral resection in our hands and as to what proportion of patients suffering from prostatic obstruction could legitimately be advised to undergo transurethral operation. We now record our impressions and our present conclusions. Our observations have been made on a consecutive series of one hundred patients subjected to the operation by members of the urological staff of the Royal Prince Alfred Hospital. These hundred patients are part of a consecutive series of one hundred and fourteen patients subjected to operation for prostatic obstruction of all kinds. The Stern-McCarthy instrument has been used throughout.

PATHOLOGY.

Before passing to a discussion of the results obtained, it is advisable to devote some passing mention to the nature of the various obstructions at the vesical neck which require treatment. Apart from congenital valves of the posterior part of the urethra and acute inflammatory conditions, which will not be discussed, and sclerosis following prostatectomy, there are three separate and distinct affections of the prostate which give rise to urinary obstruction. These are malignant disease, median bar and adenomatous enlargement.

Malignant Disease.—For the purposes of this article little time need be spent on the pathology of prostatic malignant disease. The vast majority of tumours are adeno-carcinomata, which cause obstruction by infiltration and induration of all the structures round the vesical outlet, and by the associated narrowing of the posterior urethra.

Median Bar.—The first essential in speaking of median bar formation is to appreciate the varying nomenclature which has been applied to the condition. Perhaps the commonest term applied to it is "small fibrous prostate", but other terms are *prostatisme sans prostate*, contracture of the vesical neck, atrophy of the prostate and fibrosis of the vesical orifice. All these terms mean one and the same thing, and the pathology of the condition is a slow fibrosis, due in most, if not in all, cases to long-standing infection, which causes stenosis of the bladder orifice and which leads to all the symptoms of prostatic obstruction. The cystoscopic picture is typically a shelf at the posterior aspect of the internal meatus. This is the so-called median

bar, which rises from the lower part of the visual field, conceals a portion of the trigone from view and is the chief mechanical factor in producing the obstruction.

To enucleate either the malignant or median bar type of prostate is a technical impossibility.

Adenomatous Enlargement.—Agreement has not yet been reached regarding the origin of prostatic hypertrophy. Opinion has in general inclined to the belief that lateral lobe enlargements are adenomatous in nature, while enlargement of the middle lobe may be due either to adenoma of the posterior commissural tissue or to hyperplasia of the mucosal glands, or glands of Albarran. At the present time a further point of view is gaining ground: that enlargement of the prostate, adenomatous or hyperplastic, as the case may be, may be influenced by changes in the hormone balance of the senescent individual. From the point of view of surgical treatment it matters little which theory is correct, and the great majority of cases of prostatic enlargement fall into one of three main groups: cases of lateral lobe enlargement, of middle lobe enlargement, and of both combined. This is the only type of prostatic enlargement which lends itself to enucleation, during which process the obstructing adenomata are enucleated from their "capsule" of compressed prostatic tissue.

Selection of Patients for Operation.

During the period of compilation of this series of 114 patients who were subjected to surgical interference, very few were deferred or denied operation. In a small number, those whose symptoms were not particularly inconvenient, operation was not advised, as in such patients, particularly those very advanced in years, the condition may progress very slowly, and operation may never be required. On the other hand, every patient whose symptoms caused inconvenience, or who at any stage had complete retention of urine, was regarded in the first instance as a candidate for operation. Early in the series operation was refused to several patients, but during the period over which the last ninety-six operations, transurethral and suprapubic, were carried out, operation was refused to only six. One of these had slight occasional hæmaturia as his only symptom, while in the remaining five the risk was regarded as unjustified. The first of these was aged eighty-five, and received palliative treatment, surviving for twelve months. The second was in bad general condition, with a poor renal function, the blood urea being 80 milligrammes *per centum* and the maximum urea concentration in the urine 1·5%. The third had had a recent coronary occlusion with temporary acute retention of urine. He died a few months later without having had any recurrence of his retention. The fourth was suffering from arteriosclerosis with advanced cardiac failure and œdema of the legs, and the fifth had senile dementia.

Preparation.

In each instance in which transurethral resection was carried out, the preparation of the patient and the criteria which decided when operation could be done with the minimum amount of risk were exactly the same as for the suprapubic operation. That is to say, all those patients in whom prostatic obstruction had caused an undue accumulation of excretory products, and all those who showed even early excretory deterioration, were prepared with the indwelling catheter. To this group can be added, of course, those whose bladders were infected and who needed a period of irrigation.

There were, however, a not inconsiderable number whose blood chemistry was good, and who were uninfected. This class of patient was subjected to operation without preparation and no untoward results followed.

Results of Operation.

As has already been mentioned, the present results were obtained from a series of consecutive operations on one hundred and fourteen patients suffering from prostatic obstruction of all kinds, of whom one hundred were operated upon by the transurethral method. Five patients were suffering from prostatic carcinoma, thirty-one from median bar or early middle lobe enlargement, one from sclerosis following prostatectomy, and the remaining seventy-seven from prostatic hypertrophy. The results obtained in these four groups will be discussed separately.

Carcinoma.

Five patients in the series were suffering from prostatic carcinoma, and all were subjected to transurethral resection.

In the first of these, who was the fifth patient of the individual surgeon, not nearly enough tissue was removed. He had a large, frankly carcinomatous prostate, and was able to pass only a dribble of urine. His symptoms were unimproved by operation, and a fortnight later he developed acute retention. Suprapubic cystostomy was carried out.

The second patient died after the operation and his clinical history is therefore given in full.

He was aged eighty-one years and had had steadily increasing frequency of micturition for fifteen years, culminating in complete retention of urine four months before his admission to hospital. Since then he had been able to pass his urine only in dribbles and had used a catheter regularly. On rectal examination his prostate was moderately enlarged, with induration typical of carcinoma. His blood urea was 48 milligrammes per 100 cubic centimetres of blood, and he was able to concentrate urea in his urine to 2%. He was in moderately good condition after a fortnight's preparation with an indwelling catheter, and, under spinal anæsthesia, the obstructing portions of his prostate were removed. Hæmorrhage was troublesome and the operation took three-quarters of an hour. The following day his condition was quite good and urine was draining well through the catheter and was only slightly blood-stained. He had an evening temperature of 37·4° C. (99·4° F.). That night, however, he drained only 240 cubic centimetres (eight ounces) of urine, and during the six hours ending at mid-day the next day he had anuria. He was treated with hot kidney packs and "Diuretin". The next day he was secreting urine well again, draining 2,160 cubic centimetres (seventy-two ounces) in the twenty-four hours. His blood urea was 70 milligrammes *per centum*, and he vomited a few times. The following day (four days after operation) he drained

3,720 cubic centimetres (124 ounces), but from this point his urinary secretion fell steadily, his temperature rose each evening to 38·3° or 38·9° C. (101° or 102° F.) and he gradually became more drowsy. He died eight days after operation, quite suddenly. His blood urea on the preceding day was 178 milligrammes *per centum*. No autopsy was carried out. Sections of the tissue removed at operation showed adeno-carcinoma of a spheroidal type.

In the remaining three patients the immediate result was satisfactory. As an example of the results that can be obtained, the clinical history of one of these three will be given.

This patient was admitted to hospital with complete retention of urine following a long history of steadily increasing frequency and difficulty, with a very poor stream. On rectal examination he had a well marked, frankly carcinomatous prostatic enlargement. His general condition was good and his renal function satisfactory. The posterior part of his urethra would admit only a small Tiemann's catheter, and, under local anæsthesia, a cystoscope could not be passed through the posterior part of the urethra. Under general anæsthesia two weeks later a cystoscope was passed through a very tight prostatic urethra after the exercise of a considerable amount of force. There was very little intravesical prostatic enlargement. The resectoscope was then passed, again with a good deal of difficulty, and was very tightly gripped at the bladder neck. About five grammes of tissue were removed and a new posterior urethra was channelled out down to the verumontanum. Following this a Jaques catheter, size 14 English, was passed easily. It was removed four days later and the patient passed a fair stream without any difficulty but with some terminal dribbling. On getting up he developed some incontinence if he remained on his feet for long, but left hospital nine days after operation. A month later he still had some incontinence, but was otherwise well. A month later again he had perfect control and a good stream and was passing urine six times in twenty-four hours.

Another patient in this group died seven months after operation.

This patient's general condition gradually deteriorated and finally his malignant disease became very extensive and involved the rectum. Operation completely relieved his dysuria and obviated the necessity for cystostomy.

Median Bar and Early Middle Lobe Enlargement.

Though pathologically distinct, the conditions of median bar and early middle lobe enlargement will be considered together, for the reason that their treatment by transurethral surgery does not represent a new departure. Treatment at our hands prior to the introduction of the prostatic electrotome has in each instance been by means of Young's punch.

In the present series thirty patients fell into this group, of whom seven had small middle lobes and the remaining twenty-three median bar. They were all operated upon transurethrally without mortality. Three patients in the series, all with median bar, received little or no benefit. In each case there was little confidence that a successful result would be obtained. In the first an early median bar was the only potential cause that could be found to account for a complaint of frequent micturition, while in the second the operation was done in the hope of improving the condition of a patient with a neurogenic bladder. In the third the bar was a small one and was associated with an irritable bladder of small capacity and a *Bacillus coli communis* infection of the urine which had resisted treatment over a number of years.

In the remaining twenty-seven patients the result was uniformly excellent. It has been recognized for years that in these conditions open operation is not called for, as transurethral surgery gives an equally good, if not better, anatomical result, with less risk to the patient and less post-operative morbidity. The electrotome, however, represents a further advance on previous techniques, as the cutting is done under vision. Moreover, an early lateral lobe enlargement, which would not be touched by a "punch" operation, can be simultaneously dealt with, as was the case with several patients in the present series. We find it difficult to conceive that any better method for the surgical treatment of median bar could possibly be evolved.

The successful results require little discussion. In two patients in the series the most troublesome symptoms were due to severe prostatitis, which resisted all treatment till the obstructive element was removed. The improvement in these two has been maintained.

In a few instances the operation was carried out for symptomless hæmaturia, while the remaining patients all had the usual complaint of difficulty, with a poor stream and a variable amount of frequency, and in each case relief was complete. The case of one patient may be reported in full.

This patient was aged only thirty-one and for years had had difficulty in micturition, with a poor stream. Radiographic examination had been carried out some time previously, and he had been found to have a vesical calculus. This had been removed by suprapubic operation elsewhere. His suprapubic wound had healed, but when his indwelling catheter was removed he was unable to pass urine, which leaked suprapubically. This happened on several occasions. He was found to have a small fibrous prostate, and cystoscopy showed a well marked median bar with advanced trabeculation. The bar was excised transurethrally. The catheter was removed four days later. He immediately passed urine without difficulty and with no suprapubic leakage. He left hospital two days later with a normal act of micturition and passing "a better stream than ever in his life before".

Post-Operative Vesical Neck Obstruction.

One patient in the series was suffering from sclerosis of the vesical neck following operation elsewhere. It is not possible to say, however, whether he had prostatectomy performed or whether an unsuccessful attempt was made to remove a small fibrous prostate.

He complained of marked frequency and great pain on micturition ever since his operation eighteen months previously, at the age of fifty-six, with a suprapubic sinus which leaked urine from time to time. On rectal examination his prostate was small and fibrous. A moderate amount of chronic inflammatory tissue was removed transurethrally from the bladder neck, and he left hospital ten days later with a normal act of micturition. He has since been very comfortable, with no suprapubic leakage and with occasional slight frequency. Seven months after operation he had a severe attack of cystitis which quickly responded to irrigations. Operation was carried out twelve months ago.

Adenomatous Enlargement.

Seventy-eight patients in the series were suffering from prostatic hypertrophy of a nature and degree which would formerly have been regarded as calling for open prostatectomy. Of these, fourteen were subjected in the first instance to suprapubic prostatectomy. In three of these a cystoscope would not enter the bladder; in others the enlargement was regarded as too great to be treated by transurethral methods with much prospect of success. The average age of the patients with adenomatous enlargement subjected to transurethral resection was sixty-five years.

When the method was first introduced, a beginning was made by operating on median bars and small middle lobes, and as the scope of the operation was increased, *pari passu* with the confidence of the operator, so did the proportion of patients subjected to the suprapubic operation diminish. This diminution can be seen in the following statement.

Corresponding with the first twenty transurethral operations eight prostatectomies were done.

Corresponding with the second twenty transurethral operations two prostatectomies were done.

Corresponding with the third twenty transurethral operations two prostatectomies were done.

Corresponding with the fourth twenty transurethral operations one prostatectomy was done.

Corresponding with the fifth twenty transurethral operations one prostatectomy was done.

Thus some of the patients seen early in the series and undergoing prostatectomy would subsequently have been regarded as fit subjects for transurethral operation.

The results in the sixty-four patients subjected to transurethral resection for adenomatous enlargement may be summarized as shown in Table I.

TABLE I.

Result.	Number of Cases.
Died after operation	1
Operation unsuccessful; suprapubic operation necessary	2
Result unsatisfactory; no improvement in symptoms	1
Symptomatic relief followed by recurrence of symptoms	2
Partial symptomatic relief	3
Adequate symptomatic relief	55

These results will now be discussed.

Death After Operation.

The patient who died was a Jew, aged sixty-nine years, who had had steadily increasing frequency of micturition for several months. During the month immediately preceding his admission to hospital he had had progressive difficulty in micturition, with a poor stream and marked scalding, and had had four attacks of acute retention, relieved by catheterization. On admission to hospital he was passing urine at hourly intervals, day and night. On examination he was obese, but presented no other findings of note. His prostate showed early enlargement on rectal examination, while cystoscopy showed a small middle lobe, not sufficient to conceal very much of the trigone from view, with early lateral lobe enlargement and a small oxalate calculus lying behind the trigone. The urine was infected with *Bacillus coli*, the blood urea was 43 milligrammes *per centum*, and he was able to concentrate urea in his urine up to 1·95%. After preparation with an indwelling catheter and irrigations, litholapaxy was carried out under ether anæsthesia. Recovery was uneventful. Three weeks later, after further continuous catheter drainage, his blood urea was 30 milligrammes *per centum*. The obstructing portions of his prostate were then removed transurethrally under ether anæsthesia and without incident. At this time he was secreting 3,600 cubic centimetres (120 ounces) of urine per day. During the next twenty-four hours he secreted 2,160 cubic centimetres (72 ounces), and on the day following operation had some vomiting. The next day he was restless and stuporose and secreted only 480 cubic centimetres (16 ounces) of urine. He became comatose that evening, with contracted pupils. The following morning he was deeply cyanosed and died at about mid-day. His temperature on the final day went up to 38·9° C. (102° F.). Permission for an autopsy could not be obtained. His death was unexpected. Clinically he appeared to be uræmic, but there was no reason to expect such a complication.

Operation Unsuccessful.

Two patients with complete retention of urine were unrelieved by transurethral resection and required open prostatectomy.

In the first of these, the sixteenth resection in the series of the individual operator, the obstruction was due to a moderate prostatic enlargement involving the middle and right lateral lobes. Two resections brought about no alteration in his condition. At suprapubic operation two small adenomata were enucleated from the region of the right lateral lobe, the total amount of tissue removed being only about two grammes. The bladder neck looked perfectly normal when seen from above. That portion of the prostate actually responsible for the obstruction had apparently not been dealt with.

The second patient had an exceptionally large prostate, all three lobes being enlarged. The posterior part of his urethra was so elongated that the tip of the examining cystoscope would just reach the bladder. He was treated late in the series, and his treatment by transurethral surgery was ambitious. Two resections brought about no improvement and he underwent prostatectomy. At operation the middle lobe was absent, but the lateral lobes had not been undercut to an extent sufficient to furnish an adequate channel. Obviously not enough tissue had been removed.

The other patient in whom resection brought about no improvement was the first patient in the series of the individual surgeon. He complained of marked frequency of micturition and left hospital quite unrelieved. It appears certain that while a median bar was excised an intraurethral lateral lobe enlargement was not dealt with.

Symptomatic Relief Followed by Recurrence of Symptoms.

The first of the patients in this group was aged seventy-four and was the sixth in the series of the individual surgeon.

He had a large prostate, but on account of his age and general condition it was decided to attempt to relieve him by transurethral measures. He had marked frequency of micturition and difficulty. Only a small amount of tissue was removed, each cut being followed by profuse bleeding. At the end of an hour the morale of the operator was completely shattered and the operation was discontinued. Contrary to expectations, the patient left hospital ten days later with normal micturition. Seven months later, however, he reported that his frequency had recurred to some extent and that his urinary stream had diminished. He was treated by irrigations and has since (six months) been more comfortable but not symptomless.

The second patient was the sixteenth in the series of the individual operator.

The symptoms of this patient consisted of difficulty and a poor stream, with occasional nocturnal frequency, due to a moderately early prostatic enlargement. The channel cut appeared quite satisfactory at the time of operation, and a month later the patient was very satisfied. Two months later, however, he reported that his symptoms had recurred and that his condition was much the same as before operation.

Partial Symptomatic Relief.

The first patient in the group of those who obtained symptomatic relief was aged seventy-five years; he was a poor subject for open prostatectomy.

He had a prostate of moderate size, with middle, lateral and anterior lobe hypertrophy, which had caused marked frequency, difficulty and a poor stream. He had also had two attacks of complete retention, and on admission to hospital had passed no urine naturally for three days. His urine was heavily infected. He was the eighth patient in the series of the individual operator, and since resection was carried out twelve months ago he has had no further retention and passes urine with much less difficulty. He still has, however, excessive nocturnal frequency and several ounces of residual urine, and further resection was recently carried out.

The second patient complained of difficulty, a poor stream and nocturnal frequency. He had also had two attacks of acute retention. Since resection was carried out twelve months ago he has had no further retention and has passed a consistently excellent stream. His nocturnal frequency, however, is the same as before operation, but he is quite satisfied with his result.

The third patient before operation complained of frequency, difficulty and a poor stream, due to middle and lateral lobe enlargement. Operation cured his difficulty and gave him an excellent stream, with no residual urine, but he was dissatisfied with the operation, as a variable degree of frequency persisted (two- to three-hourly during the day, once or twice at night).

This is the patient referred to below, during whose operation a delay of fifty minutes occurred while clot due to hæmorrhage from an unusually large vessel was evacuated and hæmostasis was secured.

Adequate Symptomatic Relief.

In the remaining fifty-five cases, when the patient left hospital the result of the operation was satisfactory, both to the surgeon and to the patient. It should be mentioned that in one instance this satisfactory result was achieved only after the patient's readmission to hospital for further resection. This patient had periodic attacks of acute retention and has been quite well since his second resection five months ago. A second patient, nine months after resection, developed profuse hæmaturia from his prostatic urethra and also underwent further resection two months ago for this reason. None of the remainder have required further treatment, though not all have reported for observation as requested. Three patients in the series had incontinence of overflow on admission to hospital, while thirteen had complete retention. On five occasions a second resection had to be carried out. This was usually done a fortnight after the initial resection.

Of these fifty-five patients, twenty failed to report for observation as required; two have since died, one from a cerebral hæmorrhage and one from a carcinoma of the colon, three and six months after operation respectively. In either instance resection provided adequate relief for as long as the patient required it. The remaining thirty-three patients, who did return for observation, reported back as shown in Table II.

TABLE II.

When Last Seen.	Number of Patients.
1 to 2 months after operation	15
3 months after operation	2
4 months after operation	3
5 months after operation	4
6 months after operation	3
7 months after operation	2
10 months after operation	2
12 months after operation	1
18 months after operation	1

All these patients expressed themselves satisfied with the operation at the time they were last seen.

Although this follow-up is anything but complete, the behaviour of the patients who have reported back has been such as to make us feel sanguine about the probable condition of those with whom we have lost touch, especially in view of the fact that we have observed repeatedly that when a patient leaves hospital with a good stream and two ounces of residual urine or less, as all this group have done, and still has some frequency of micturition, the tendency is for consistent improvement. We believe that though these patients were satisfied with their condition when last seen, many of them should now feel even more satisfied as a result of further improvement.

Rather than attempt a detailed tabulation of the results in this series of patients, it seems preferable, and sufficient for the purposes of this article, to detail briefly the histories of a few of them as illustrative of the results that can be obtained.

In the following case frequency, difficulty, acute retention were present. Symptomatic cure resulted.

The patient, aged seventy-four years, had had difficulty in micturition for two years. He had to strain a lot when passing urine and was able to pass only a dribble. He had acute retention a month before admission to hospital, relieved by catheterization. On admission he was passing urine every hour during the day, three times at night. He had well marked enlargement of the middle and both lateral lobes, with marked trabeculation. Transurethral resection was carried out and he left hospital eight days later, passing an excellent stream. He reported seven months later with normal micturition. Twelve months after operation he was passing an excellent stream three or four times during the day and occasionally got up once at night.

In the following case incontinence of overflow due to an enlarged infected prostate was present. Symptomatic cure resulted.

The patient, aged fifty-five years, was first seen in 1932, in the out-patient department of the Royal Prince Alfred Hospital, complaining of frequent and difficult micturition for twelve months. He had well marked pyuria, his pros-

tate was markedly enlarged and softish in consistency, and a large amount of purulent secretion was obtained on prostatic massage. He was treated for several weeks by means of prostatic massage and irrigations without any improvement, and was finally admitted to hospital for prostatectomy. On account, however, of his prostatic infection operation was refused and he was discharged from hospital. He returned two years later and requested operation at whatever risk. His bladder was now distended to a point just below the umbilicus and he was passing urine at hourly intervals, day and night, with severe scalding, much straining and a stream that amounted only to a dribble. The rectal and urinary findings were much the same as before, and cystoscopy revealed a small middle lobe with well marked lateral lobe enlargement. After the usual preparation, a considerable amount of tissue was removed transurethrally from the middle and lateral lobes. After his catheter was removed his symptoms were still fairly well marked, but with a daily catheterization and irrigation his residual urine came down and his frequency and difficulty became less. He left hospital on the tenth day, and a week later, with a good stream and nocturnal frequency five times, was already satisfied with the result of operation. Five weeks after operation he was getting up twice at night, and when next seen, four months later, was passing urine normally, three times during the day and not at all during the night. His urine contained a few pus cells. He returned again, ten months after operation, with normal micturition and urine that was pus-free.

In the next case difficulty and frequency were present. Symptomatic cure resulted.

The patient, aged fifty-seven years, complained of difficulty and a poor stream for twelve months. When first seen he was passing urine at hourly intervals during the day and up to twice at night. He had no pyuria, and rectal examination revealed a moderate degree of prostatic enlargement. Cystoscopy revealed a trabeculated bladder and a middle lobe which concealed the trigone from view. The lateral lobes were not enlarged intravesically. The middle lobe was removed transurethrally and a channel was cut through the lateral lobes. This patient had a good deal of difficulty after operation and left hospital on the nineteenth day, passing a good stream, but with considerable frequency, occasional precipitancy and a lot of pyuria. He then showed steady improvement. Three months later his urine contained only a few pus cells and he had slept for as long as seven hours without a break. Six weeks after this his urine was quite clear and he stated that he had improved since being last seen, but felt that there was no room left now for further improvement. He reported again three months later and was still perfectly well.

In the following case hæmaturia and frequency due to early prostatic enlargement were present. Symptomatic cure resulted.

The patient, aged sixty-one years, complained of periodic painless hæmaturia for eight months, with frequency, eight to ten times during the day, six or seven times at night. On rectal examination his prostate showed early enlargement and he had no pyuria. Cystoscopy revealed no sign of papilloma, but there was definite middle and lateral lobe encroachment at the vesical neck. Transurethral resection was carried out, recovery was uneventful and the patient left hospital on the seventh day. Two months later there had been no further bleeding, but there was still some frequency. His urine was clear, but his external meatus had become pin-point. This received attention and when he was last seen, five months after operation, hæmaturia was still absent and he was symptomless.

Associated Lesions.

Five patients in the series, in addition to the one whose death is recorded, had vesical calculi; all had adenomatous prostates. In two cases the stones were small enough to be evacuated without crushing, while in the remaining three litholapaxy was carried out without incident. Four patients also had vesical papilloma. In one this was treated by cystoscopic fulguration, while in the remaining three cystotomy was necessary. No difficulty was experienced in getting the wounds to heal after resection, nor in one other patient in whose case preliminary cystostomy was carried out on account of severe urinary sepsis.

Complications.

Post-operative hæmorrhage was not a feature of any case in the series. The subject of hæmorrhage, however, is discussed at greater length below. Two patients developed severe pyelonephritis after operation; both recovered. One of these, who vomited for several days and had a markedly elevated blood urea, caused considerable anxiety before he settled down. There were no mishaps due to faulty technique or too enthusiastic cutting, such as pelvic cellulitis or extravasation of urine, and no patient developed urinary incontinence.

Post-Operative Course.

Not one of the least satisfactory features of this series of operations has been the complete absence of cause for anxiety about the patient's well-being following operation. There is a complete absence of post-operative shock, there have been very few febrile reactions of any magnitude, and post-operative hæmorrhage of any severity, whether reactionary or secondary, has not occurred.[1]

Occasionally a catheter has required freeing of clots during the first twenty-four hours, but hæmorrhage has never been in the slightest degree disturbing, and no patient has required or has threatened to require active surgical treatment for its control once he has returned from the operating theatre. In most cases there is no obvious blood in the urine after the first forty-eight hours.

The indwelling catheter is in general removed on the fourth day, but if there is still any oozing from the prostatic urethra it is kept in for a few days longer. Following the removal of the catheter the patient is given a daily irrigation, in the course of which he is tested for the presence of residual urine, and leaves hospital a week or ten days after operation. There has not, however, been any attempt at getting patients out of hospital at the earliest possible moment. If it appears that a patient may derive benefit from any further hospitalization, it has been afforded to him.

The course following removal of the catheter varies a good deal. If the operation has been successful, most patients pass urine quite easily, with a moderate degree of frequency, which rapidly clears up. Others have marked frequency and urgency, which gradually improve till normal control is regained. Some urinate with considerable difficulty, which they gradually lose, and have residual urine,

[1] Since the above was written, one patient, Number 148 in the series, developed a severe secondary hæmorrhage on the tenth post-operative day. He recovered, however, without surgical interference.

which steadily decreases with daily catheterization and lavage. A few find themselves unable to micturate, so that the catheter has to be reinserted till the post-operative œdema which must be the cause of the retention has settled down. Several patients developed pyrexia following strenuous attempts to micturate, so that there is now no hesitation in reinserting the catheter at any suggestion of difficulty.

Every patient necessarily has pyuria following the use of the indwelling catheter. This usually clears up in a few weeks with no treatment other than a copious fluid intake, but may take some months to disappear. It is a noteworthy fact that a convalescent patient with pyuria may have distinctly less frequency than he had before operation when his urine was clear.

Mortality.

Two patients out of the one hundred operated upon died—a mortality of 2%. In neither case do we attribute death to the type of operation carried out. Taking into consideration the fact that ten patients in the series had a second resection, there were two deaths in 110 operations—an operative mortality rate of 1·82%. Most operators have reported a mortality of 3% to 5%, that is, much the same as that following prostatectomy; but the comparison is not quite fair, as transurethral resection can be, and is, carried out on patients in whom prostatectomy would be out of the question, so that many deaths following resection would not have occurred after prostatectomy, as on these patients prostatectomy would not be done. Caulk circulated a *questionnaire* to which 244 surgeons replied. After 8,073 resections there were 231 deaths—a mortality of 4·7%. In our own series the low mortality is in part attributable to the fact that it so happened that there were not a very great number of "bad risks". At the same time there were several patients in the series who definitely would not have stood prostatectomy.

Such being the case, we are not unduly sanguine about maintaining this low mortality, as we do not now feel justified in refusing operation in cases in which a patient's life is a misery or he cannot pass any urine naturally, unless his demise is imminent.

Technical Considerations.

Though removal of a median bar or early middle lobe is usually quite a straightforward procedure, transurethral surgery of the adenomatous prostate in general is far from being the simple matter that one might imagine it to be from a perusal of some of the published reports.

In the first place, the introduction of the instrument, of large size and not provided with a beak, may be anything but easy. Occasionally it is impossible. In a few patients it was necessary to remove the obturator, substitute the telescope, and negotiate the instrument past the obstructing tissue under vision. After the instrument is passed the bladder neck and posterior part of the urethra are closely inspected and an idea is formed of the amount and location of the tissue to be removed. If, however, passage of the instrument has been difficult, examination of the posterior part of the urethra is better deferred till sufficient tissue has been removed from the bladder neck to obviate any difficulty in its reintroduction.

Apart from hæmostasis, which will be discussed shortly, the chief difficulties in the operation are to decide how much tissue to remove, whence to remove it, and, quite frequently, where it is being removed from. Before the cutting commences the operator has a very exact conception of the structures in relation to the posterior part of the urethra and bladder neck; but as more and more tissue is removed so does it become progressively more difficult to get one's exact bearings, to decide when to go on and remove more tissue, and when to stop. After some time it is not always easy even to identify the vesical neck with certainty. In one patient, quite late in the series, a shaving of tissue was inadvertently removed from the centre of the trigone. One important landmark, the verumontanum, is usually fairly easy to identify, but not always. In the presence of large hypertrophy it is not always very obvious, and in some cases of malignant disease of the prostate may be unrecognizable.

Furthermore, the actual removal of obstructing tissue may often be much more easily contemplated than carried out. At first the cutting loop, instead of biting deeply into the prostatic tissue, merely slides over its surface, and the experience of a good number of resections is necessary before the operator acquires the knack of automatically placing the loop and adjusting the axis of the resectoscope in that position which by repeated trial and error has been found to afford him the optimum mechanical advantage.

Lastly, the operation is not rendered any easier by the element of hæmorrhage. Sometimes this gives very little trouble; more often a good number of vessels require sealing off with the coagulating current; and in an occasional patient active and profuse bleeding follows practically every cut made. The control of arterial bleeding can be no easy matter, and more time may be spent on this than on remodelling the vesical neck and posterior part of the urethra, so that the operator, after spending thirty or forty minutes on locating and sealing off bleeding points which are the result of perhaps ten or a dozen cuts, can easily lose patience and even morale, and when the irrigation at last returns clear he is sorely tempted to desist, in the hope that he may have done enough. In one instance an artery was opened into simultaneously with the failure of the lamp on the instrument. While a new one was being fitted the bladder filled with clot. It required fifty minutes to evacuate this and to find and seal off the bleeding point. This patient is the last mentioned under the heading "Partial Symptomatic Relief". Whether this result was influenced by loss of efficiency on the part of the operator following this prolonged stress, it is not possible to say, but it is not unlikely. With regard to this same loss of efficiency a particularly interesting observation has been made on several occasions by the authors

if both have been present in the operating theatre at the same time. Considerable amounts of tissue can often be removed by the onlooker after the operator has removed all he can. After an hour the eye tires and the concentration flags.

The operation from start to finish demands a complete and deliberate concentration of effort and attention to detail which has few, if any, counterparts in open urological surgery. We have no hesitation in stating that the average suprapubic prostatectomy is technically an easier procedure by far than the efficient treatment of the same patient by transurethral measures, and we believe that the technical difficulties of the transurethral operation are such that the personal performance of a series of at least fifty is required to render the most expert cystoscopist an efficient transurethral operator on the obstructing adenomatous prostate. Even then he has much to learn, and from time to time will await the outcome of the operation with anything but confidence.

Conclusions.

It can be regarded as an established fact, accepted by urologists practically universally, that transurethral resection is the operation of election for median bar. It is also generally agreed that it is the best measure available for the palliative treatment of prostatic carcinoma. With these observations our experiences are in complete accord. Present controversy is almost entirely concerned with the rôle that it should play in the treatment of adenomatous enlargement.

In the majority of such patients treated by us an immediate functional result has been obtained which has been perfectly satisfactory to the patient, and equal to any which could have been obtained by open operation; and we consider that, in general, unsatisfactory results should not be debited against the operation, but rather ascribed to the fact that it has not been carried out with complete efficiency. We thus regard our modified successes and our failures as due to our own shortcomings in technique, and not to the type of operation performed.

What degree of permanence will attach to these results time alone will show. One would expect recurrence of symptoms, early or late, to be the rule, but many observers believe that this is no more prone to occur than after prostatectomy. In this connexion the expectation of life of the patient at the age when he comes to operation is an important consideration. If the result of the operation lasts for as long as the patient requires it, its success has been complete, as witness the two patients in our own series who died from other causes a few months later.

It is not possible to state in so many words what are the indications for the operation. Every surgeon will treat adenomatous prostatic enlargement by that method which in his hands gives good results, and while some have developed their operative technique to a very advanced degree, others have an especial flair for transurethral work, so that the type of operation used and the type of prostate in which it is to be used will always depend on the individuality of the surgeon. It does not seem likely, however, that success will attend the surgeon who reserves resection for those of his patients for whom prostatectomy would be out of the question, as the resection of a very occasional adenomatous prostate will hardly enable him to develop his technique to a degree sufficient for him to be reasonably confident of satisfactory results. It has been said more than once that "the casual resectionist is doomed to failure", and we believe that this is so.

On broad general lines our present feelings are these. In the absence of personal knowledge as to what period of symptomatic relief may be expected, we are so far not convinced that for the patient in good condition, with a considerable number of years of life ahead of him, and with a medium to large adenomatous prostate, transurethral resection is a procedure as surgically sound as open prostatectomy. But for early enlargements, whether of middle or lateral lobes, for men with small expectancy of life, for men with poor renal function or other disease which would render prostatectomy a risky procedure, whenever any suspicion of malignant disease arises, and, finally, for all those who are beyond prostatectomy and who would otherwise be condemned to a catheter life or a suprapubic tube, we strongly advocate the transurethral operation.

So far much has been said from the point of view of the surgeon; but something should be said from that of the patient. One has often sympathized with the patient of advanced years who, perhaps as his first symptom, or perhaps after some mild nocturnal frequency which he has regarded as the penalty of his advancing years, suddenly develops acute retention and is confronted with the prospect of a prostatectomy as the only alternative to a catheter life. Granted that the results are good, the mortality low, and the outcome gratifying to patient and surgeon alike, transurethral surgery offers the patient something that open surgery cannot give. He does not face the ordeal of open operation, and he leaves hospital, passing his urine once again, a week or ten days after what to him has been a simple and minor surgical procedure. Finally, compare the outlook of a patient with a carcinomatous prostate who has had a permanent cystostomy performed, with that of a patient suffering from the same condition whose urethra has been kept patent by means of transurethral resection. If this alone were the only class of patient to whom transurethral prostatic resection could give relief, the method would have amply justified its existence.

Acknowledgement.

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Reports of Cases.

INTRAMUSCULAR INJECTIONS OF LIVER EXTRACT IN THE TREATMENT OF PERNICIOUS ANÆMIA.

By A. R. SOUTHWOOD, M.D.,
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AND
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The Progress in Parenteral Treatment.

Now that several satisfactory preparations of liver extract are available for parenteral administration in the treatment of pernicious anæmia, this method is supplanting oral treatment by whole liver or liver extracts, especially in the severe stages of the disease. The response to the injections is so much more certain and more rapid. The historical summary in the excellent paper by Hilda Gardner and Ian Wood in THE MEDICAL JOURNAL OF AUSTRALIA of May 4, 1935, indicates the steps by which the procedure has been evolved.

When the method of intramuscular injection of liver preparations was introduced, it was customary to give a small dose daily at the outset of treatment, and, as progress in the patient's condition followed, the frequency of the injections was reduced. With the patient's further progress injections were discontinued and reliance was placed on feeding with whole liver or liver extracts to maintain a satisfactory blood state.

There has been a recent tendency among physicians to administer larger quantities of liver extract by intramuscular injections in the endeavour to get a more rapid response and to spare the patient the annoyance of frequent injections. Professor F. R. Fraser worked along these lines at Saint Bartholomew's Hospital in London in 1934, giving intramuscular injections of liver extract in the amounts of ten cubic centimetres at weekly and later fortnightly intervals. This depôt method is now established as safe and satisfactory. It has the great advantage of certainty of action. With many patients the taking of whole liver by mouth, though aided by the best culinary embellishments, is a difficult and distasteful business. Besides, most of the palatable liver extracts are very expensive.

Reticulocyte Counts.

As in other methods of treatment of pernicious anæmia, the daily reticulocyte count is an extremely valuable criterion of the patient's response. Gardner and Wood rightly stress the point that the reticulocyte rise varies inversely as the erythrocyte count at the beginning of treatment. With counts of 1,000,000 or so per cubic millimetre the reticulocyte response is usually high. Moreover, the reticulocyte count serves as a valuable diagnostic feature in some cases and as a therapeutic test of the efficiency of the liver extract being used.

Janet Vaughan, in her book, "The Anæmias", states that it is possible to predict with fair accuracy the level to which the reticulocytes should rise if a maximum dose of liver preparation is given. Unless a maximum reticulocytosis is obtained, the dose as employed is inadequate and should be increased. The subjoined table from her book indicates the reticulocyte response that may be expected.

The case report we now present provides an interesting comparison of the reticulocyte rises obtained by small dose and massive dose methods of treatment.

Approximate relation of reticulocyte production at peak of rise of initial red cell count in response to daily administration of liver extract derived from:
Oral, 300-400 grammes.
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Initial Value of Red Blood Cells (millions).	Approximate Reticulocyte Percentage.
0·5	55
1·0	35
1·5	22
2·0	14
2·5	8
3·0	4

Case History.

H.R., a man of fifty years, was admitted to hospital in February, 1934. He was very pale and complained of extreme general weakness and of "cramps in the stomach". For some weeks he had been troubled with frequent vomiting, and the presence of a gastric ulcer was at first suspected. Hydrochloric acid was absent from the gastric juice, even after histamine injection. The blood examination presented a typical picture of pernicious anæmia. The red cell count was 1,250,000 per cubic millimetre, hæmoglobin value was 35%, and the colour index was 1·3. The Van den Bergh test gave the indirect positive result. He was treated with small doses of liver extract administered intramuscularly, and a satisfactory response was obtained. After a week he was able to take a fairly full diet; a fortnight later liver feeding by mouth was instituted, and the injections were discontinued. Altogether he received 22 cubic centimetres of "Campolon" during the three weeks. Figure I indicates the resulting rise of reticulocytes, red cells and hæmoglobin. The patient was discharged from hospital at the end of six weeks' treatment, and was instructed to continue with liver treatment as an out-patient. Subsequent events indicate that he did not follow these instructions; he apparently came to regard himself as permanently cured.

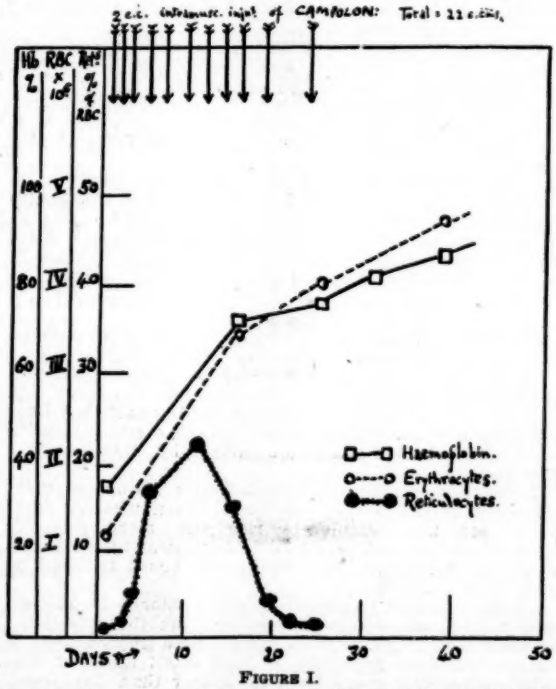

FIGURE I.
Showing the reticulocyte rise after "Campolon" injections in two cubic centimetre doses. The continued rise of hæmoglobin and erythrocyte count is also shown. This is a typical response in cases of this degree.

On May 20, 1935, he was readmitted to hospital. During the previous six months he had been troubled with giddiness, nausea, occasional vomiting and shortness of breath. For several weeks his wife had urged him to report for treatment, but he had obstinately refused. During the two days previous to admission he felt extremely ill,

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The case report we now present provides an interesting comparison of the reticulocyte rises obtained by small dose and massive dose methods of treatment.

Case History.

H.R., a man of fifty years, was admitted to hospital in February, 1934. He was very pale and complained of extreme general weakness and of "cramps in the stomach". For some weeks he had been troubled with frequent vomiting, and the presence of a gastric ulcer was at first suspected. Hydrochloric acid was absent from the gastric juice, even after histamine injection. The blood examination presented a typical picture of pernicious anæmia. The red cell count was 1,250,000 per cubic millimetre, hæmoglobin value was 35%, and the colour index was 1·3. The Van den Bergh test gave the indirect positive result. He was treated with small doses of liver extract administered intramuscularly, and a satisfactory response was obtained. After a week he was able to take a fairly full diet; a fortnight later liver feeding by mouth was instituted, and the injections were discontinued. Altogether he received 22 cubic centimetres of "Campolon" during the three weeks. Figure I indicates the resulting rise of reticulocytes, red cells and hæmoglobin. The patient was discharged from hospital at the end of six weeks' treatment, and was instructed to continue with liver treatment as an out-patient. Subsequent events indicate that he did not follow these instructions; he apparently came to regard himself as permanently cured.

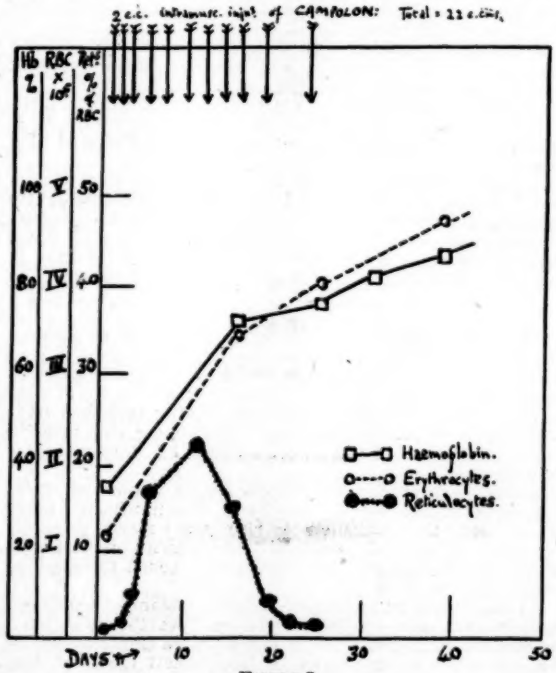

FIGURE I.
Showing the reticulocyte rise after "Campolon" injections in two cubic centimetre doses. The continued rise of hæmoglobin and erythrocyte count is also shown. This is a typical response in cases of this degree.

On May 20, 1935, he was readmitted to hospital. During the previous six months he had been troubled with giddiness, nausea, occasional vomiting and shortness of breath. For several weeks his wife had urged him to report for treatment, but he had obstinately refused. During the two days previous to admission he felt extremely ill,

vomiting after all food. He complained of pain in the epigastrium. His mental functions were depressed, and in conversation he wandered from subject to subject. He was unable to remember the events of the previous few days. Slight exercise made him extremely short of breath, and he could barely stand on his feet. He admitted that he had not eaten any liver for the previous three months.

On admission to hospital he was obviously very anæmic, and his skin was of a classic lemon yellow tint. There was no obvious wasting of tissues. The mucous membrane of the mouth was very pale. His pulse rate was 110 and respiration rate was 20. The systolic blood pressure was 108 millimetres and the diastolic pressure 68 millimetres of mercury. Neurological investigation revealed no abnormality. Acetone and diacetic acid were present in the urine. He was so ill that he was placed in bed under a "shock cradle". Saline solution was given *per rectum*, and "Campolon", four cubic centimetres, was given into the buttock.

The usual investigations were made. The blood examination revealed pernicious anæmia of severe degree. The hæmoglobin percentage (Sahli) was 25; red cells numbered 950,000 per cubic millimetre; the colour index was 1·3. The leucocytes numbered 6,000 per cubic millimetre; the reticulocytes were present in the proportion of 2% of the erythrocytes. The red cells showed a general megalocytosis, with anisocytosis, poikilocytosis, and polychromatophilia. Analysis of gastric contents a few days later revealed achlorhydria. The Van den Bergh test gave the positive indirect response.

On the second day eight cubic centimetres of "Campolon" were injected in the morning and sixteen cubic centimetres in the evening. Thus a total amount of twenty-eight cubic centimetres of "Campolon" was injected during the first two days of treatment.

Reticulocyte counts were done every day, and on the seventh day of treatment had reached the astounding figure of 61% of the total red cell count.

No further liver extract injections were given for three weeks, when a dose of eight cubic centimetres was administered. No further reticulocyte rise followed this injection.

A subsequent later injection of four cubic centimetres was given, and it is proposed to continue this fortnightly injection for the next few months. Saccharated carbonate of iron was given in two gramme (thirty grain) doses three times a day from the third week onward. Figure II indicates the result of treatment in a graphic manner.

Comment.

The patient whose case history is here recorded suffered from pernicious anæmia of severe degree.

In the initial attack a satisfactory response followed intramuscular injections of liver extract by the small dose method. He neglected to continue taking sufficient liver and relapse occurred a year later. On this occasion massive doses of liver extract were given by intramuscular injection.

Comparison of the two blood charts shows no great difference in the results obtained. When massive doses were used the reticulocyte rise was more promptly obtained. Rapid and sustained improvement in the hæmoglobin percentage and the erythrocyte count followed on each occasion.

At the outset of treatment in each instance the patient suffered no apparent inconvenience from the injections; he was too ill to notice them much. With improvement in his condition he preferred to have small doses of four cubic centimetres every fortnight rather than eight cubic centimetres each month. The larger dose gave greater discomfort.

Authorities agree that the intramuscular injection of suitable liver extracts is *par excellence* the treatment for pernicious anæmia—it is safe, rapid and efficient. Certain definite rules may now be formulated for the management of anæmia patients, and some of these are indicated below.

1. The first essential is accurate diagnosis of the type and grade of anæmia. A complete study of the blood picture should be made before treatment with liver or iron preparations is instituted.

2. Reticulocyte counts should be made every day or two during the first fortnight of treatment. In pernicious anæmia the high peak indicates adequate dosage with a potent liver preparation and also serves to confirm the diagnosis. A reticulocyte increase also occurs during the treatment of simple achlorhydric anæmia with iron, but the rise is of a lower order.

3. Symptoms of gastro-intestinal disturbance are often prominent in pernicious anæmia. Minot noted them in 31 of a series of 100 cases; in three instances peptic ulcer was simulated. Liver extract injections lead to prompt amelioration of these symptoms; within a week the patient is able to enjoy substantial meals.

4. Anæmia patients often exhibit pronounced mental changes, rendering it difficult for the physician to secure their cooperation in treatment. Such patients may deliberately refrain from eating the prescribed amounts of whole liver or liver extract.

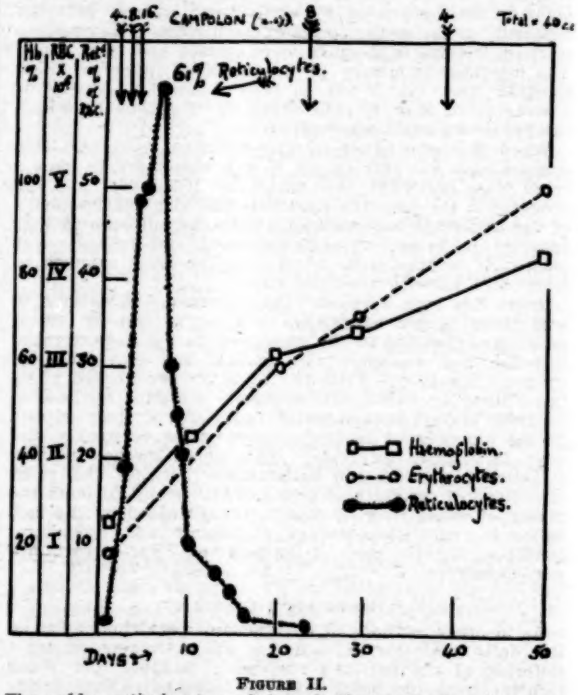

FIGURE II.
The sudden reticulocyte peak is well illustrated when the same patient, a year later, was treated with large doses of "Campolon".

5. Feeding with whole liver presents many difficulties. Some patients find it distasteful. It is not always practicable to obtain supplies regularly. In patients with gastro-intestinal or mental symptoms special difficulties exist. In such circumstances parenteral administration of liver extracts has the obvious advantages of ease of administration and promptness and certainty of response.

6. Intravenous injections of extracts were in use for some time before suitable preparations for the intramuscular route were available. Figure III illustrates the reticulocyte rise after a small series of intravenous injections; although the counts were not continued long enough to note the maximum point reached, the ascent was more sluggish than that to be expected from the massive dose intramuscular method. As a general therapeutic principle, intramuscular treatment, if comfortable and efficient, is to be preferred to intravenous.

7. The small dose intramuscular method, two cubic centimetres of liver extract ("Campolon") at first daily and later at less frequent intervals, has been extensively used and has given excellent results. Patients rarely complain of any discomfort from it.

8. The massive dose intramuscular method gives a more dramatic reticulocyte response. The peak of 61% is a record in our experience. The rise of hæmoglobin and of erythrocytes is no more rapid than by the small dose method. Local discomfort from the injection of eight cubic centimetres or more is a slight disadvantage.

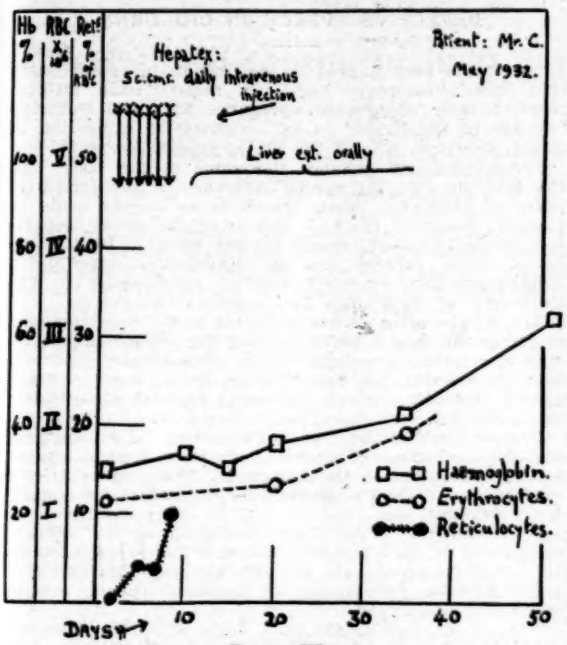

FIGURE III.

Intravenous injections of "Hepatex", followed by oral administration of liver extract. The response was much less rapid than that usually obtained from intramuscular injections.

9. Blood transfusion is rarely necessary if intramuscular treatment is vigorously pursued. Even the desperately ill patient responds to anti-shock measures. Although in pernicious anæmia the hæmoglobin percentage may be down to 20 or so, there is not the accompanying extreme vascular depletion that is noted in patients who have had a sudden severe blood loss.

10. Hydrochloric acid administration is rarely necessary. Adequate liver treatment usually clears up any gastro-intestinal symptoms. If diarrhœa persists, the acid is useful.

11. Preparations of stomach tissue are sometimes used. We have had little experience with these. It is doubtful whether they are necessary in the treatment of pernicious anæmia. "Marmite" feeding is found of value by some authorities.

12. In cases in which response to liver injections is delayed, thyreoid tablets may be a valuable adjunct.

13. Iron in an easily assimilable form is often necessary. There is less need for iron medication if whole liver feeding is used, but with injections the additional iron is required.

14. A suitable scheme of treatment is as follows: (*a*) Intramuscular injections of liver extract. Twenty cubic centimetres are given on the first day, ten cubic centimetres on the fifteenth, and four cubic centimetres each fortnight until the blood picture is normal. The amounts refer to "Campolon" and extracts of similar strength. (*b*) Liver feeding by mouth may be given in addition, but is really not necessary. A good mixed diet is the essential. (*c*) Saccharated carbonate of iron, two to four grammes (half to one drachm) thrice daily after the first fortnight, may be given. Iron should be continued till a normal blood picture is obtained. (*d*) Maintenance treatment by liver extract injection, four cubic centimetres each month. Occasional short courses of treatment with iron may also be useful. This *régime* should be followed for at least a year. (*e*) Blood examination should be repeated twice a year at least, and further treatment regulated by the results. The early detection of relapses and their prompt and ample treatment are essential if nervous complications are to be avoided.

Reviews.

DISEASES OF THE THYREOID GLAND.

SIX years have elapsed since the publication of the second edition of Hertzler's book on diseases of the thyreoid gland.[1] The book has been entirely rewritten and, like the preceding, this edition is an expression of Hertzler's own experiences and impressions. When Hertzler's position in medicine today is considered, we must welcome his opinions and try to appreciate them. He is head of a clinic, with a hospital of 200 and more beds attached, situated in the village of Halstead in a farming district in Kansas State, United States of America. He has occupied in succession the positions of professor of anatomy and of pathology, and at the present time holds the professorship of surgery at the University of Kansas. He has published many books dealing with the surgical pathology of various regions of the body, and he has been, and still is, a contributor to leading surgical journals.

Besides being a prominent surgeon he is a general clinician of undoubted high standing. In consequence of these known qualifications the reader will expect something above the ordinary, and he will not be disappointed. He will find within the pages of this book a clinical outlook which is not often found in books written by specialists in surgery. Hertzler writes in a vigorous style, which is concise and to the point, and brightened in places with dry humour. He considers himself to be as much a physician and pathologist as a surgeon, and he justly claims that the advantages of working in a detached centre are many, the most important being that a surgeon with ideas may work uninfluenced by the opinions of associates. He is better able to follow the course of the disease and to see the end results, and Hertzler has been able for the same reasons to observe his old patients continually for over thirty years. This, he states, has brought out more forcibly than ever the fact that the disease known as goitre is a continuous process, the normal termination of which, in the absence of adequate treatment, is a death from cardiac disease. He states that his experience has led him to adopt more and more surgical measures culminating in complete thyreoidectomies in certain selected cases. This extreme radical measure at first sight appears astounding and unjustifiable, but he points out that myxœdema, or hypothyreoidism as he prefers to call it, has not resulted in consequence. He advocates that in all cases in adults the surgeon need not hesitate to do an adequate operation, even though this involves the removal of all visible tissue, for he does not look upon post-operative hypothyreoidism as a disaster, but as a therapeutic achievement. It can be controlled by specific therapy. This aspect is of medico-legal importance, especially as some of the patients would eventually have become myxœdematous without operation. Hertzler argues that the post-operative hypothyreoid patient is permanently relieved of his thyreoid affection, and the taking of one grain of thyreoid extract a day for an indefinite period is a comparatively mild alternative to the thyreoid disease. Only by such radical operations, he argues, has the surgeon been able to obtain permanent results in all cases. Less radical measures, he admits, obtain results in nearly all cases, but recurrences after five years are far too frequent to make it a satisfactory method of procedure. He sums up the subject by saying: "The

[1] "Diseases of the Thyroid Gland", by A. E. Hertzler, M.D., with a Chapter on Hospital Management of Goiter Patients, by V. E. Chesky, M.D.; Third Edition, entirely rewritten; 1935. St. Louis: The C. V. Mosby Company; Melbourne: W. Ramsay. Royal 8vo, pp. 348, with illustrations. Price: 45s. net.

bugaboo of post-operative myxœdema may be relegated to the misconceptions of the past." Such radical measures may not appeal to most thyreoid surgeons, but Hertzler's argument will give confidence perhaps to the surgeon who is confronted with the problem (as he is in all cases of severe exophthalmic goitre and in the highly toxic degenerative multiple nodular type of goitre patient) of how little thyreoid gland should be left.

Hertzler's outlook is unusual, to say the least of it; but it has a logical basis, for all thyreoid surgeons have experience of patients who have been relieved only partially by subtotal thyreoidectomy. The author rightly emphasizes that the operation of total thyreoidectomy requires a thorough knowledge of anatomy by the surgeon, a perfect technique and a boldness to overcome the fear of removing the parathyreoids or damaging the recurrent laryngeal nerves. In other words, it is an operation for the experienced thyreoid surgeon alone and should not be undertaken by the inexperienced.

Referring to the basal metabolic reading, the author points out that at most it is only the measure of tissue destruction and bears no evidence of the other phases of thyreoid disease. It is only one minor factor when the thyreoid disease as a whole is considered. The method is not used as a routine in Hertzler's clinic. The thyreoid surgeon in Australia will doubtless welcome this dogmatic statement, for he realizes that the basal metabolic measurement does not tell him how ill his patient is or when it is safe to operate. As Hertzler says: "The patient may be ready for operation, but the goitre is not." Only clinical experience can guide him on this point.

Regarding the use of Lugol's solution Hertzler is again very definite. Physicians still prescribe Lugol's solution for indefinite periods, much to the annoyance of the surgeons under whose care the patients eventually come for operation. Both will be interested to read the author's opinion on the use of this solution. He writes: "Lugol's solution is a dangerous remedy in the end. Temporary results may be obtained, but sooner or later relapse comes and then the remedy fails to produce even temporary results. When operation becomes necessary the surgeon is much handicapped if Lugol's solution has been given . . . . Only the chronic prescribers of Lugol's solution can defeat the surgeon." The author states that Lugol's solution should never be prescribed, except by the surgeon after the patient has entered hospital for operation and as soon as the proper condition for it arises; and we cannot but agree with this ruling.

Because Hertzler is about to publish a volume on the pathology of the thyreoid (about the seventh of a large series of monographs on surgical pathology) he states that he has placed the pathology of the gland in a minor rôle in the volume under review. Nevertheless the reader will find concise but most excellent descriptions of the various pathological states, and he will be favourably struck by the excellence of the many reproductions, particularly by those of the microscopic pathological change. Throughout the work the reader will be impressed by the soundness of Hertzler's teachings and the effort he has made towards simplicity of classification and conciseness of description. The pure pathologist no doubt has grounds for disagreement in places, but the author, being a clinician, rightly considers the clinical aspect to be of primary importance and treats it as such. We strongly recommend this book for the earnest consideration, not only of the surgeon, but of the physician and general practitioner. All will find matters of particular interest in their work: the pædiatrician, in goitre in childhood; the gynæcologist, in goitre and ovarian dysfunction and dysmenorrhœa; the surgeon, in ovarian pain and the unwarranted removal of the appendix; the cardiologist, in toxic goitre and cardiac disease; the general physician, in the possible causation of glycosuria in thyreoid disease and many other questions; the throat specialist, in tonsils and goitre in children; whilst the radiologist is told that X rays do not always discover a retrosternal goitre.

Hertzler is scathing at times, but he is fair and includes surgeons in his criticisms. The book is excellently produced, contains 181 illustrations and an index of nine pages; and, as the work is the expression of Hertzler's personal views, there is no bibliography. The usual coined words and forms of expression peculiar to American writers are in evidence; but these do not prevent the book from being very readable.

DEFECTIVE SPEECH IN CHILDREN.

THERE has been a growing realization in recent years that speech disorders have not received the medical research their importance warrants. Seth and Guthrie's "Speech in Childhood" is an authoritative exposition of speech development and the major speech disorders.[1]

Several features enhance the value of the book. In the first place it has special reference to the formative years of childhood, when speech is so largely made or marred. Secondly, the book had its origin in the cooperation of the laryngologist and the psychologist, Dr. Guthrie being aural surgeon to the Children's Hospital in Edinburgh, and Dr. Seth clinical psychologist to the University of Edinburgh Psychological Laboratory.

The collaboration of the physician and the psychologist is one of the most hopeful signs in the permanent alleviation of certain speech complaints. The authors point out that their study has been limited to the more common speech disorders, aphasic and gross lesional disturbances being omitted.

The first half of the book is devoted to the development and the mechanism of speech in its main aspects, physiological, phonetic and psychological. The chapter on the mechanism of speech admirably coordinates the respiratory, laryngeal and phonetic aspects. The discussion on speech and the brain draws attention to the cortical complexity of the integrative action of the nervous system in controlling speech, the simpler "classical" conception of the schematic distribution of localized speech centres being now abandoned.

The second half of the book deals with the commoner disorders. The relation is shown between defective speech and defective audition, and modern methods of teaching the deaf child to speak are explained. Dumbness is found to be sometimes influenced by psychic conditions and environment. Cluttering, when the child, an "articulatory road hog", pours forth a torrent of defectively articulated words at an abnormal rate of speed, is most prevalent among German children. Painstaking detail is necessary to overcome mispronunciation of consonant sounds (dyslalia), ideoglossia and sigmatism (lisping). Defects of nasal speech (rhinolalia) are usually organic in origin, cleft palate being the most important, but in all cases the need for speech and other exercises is stressed.

Stammering is correctly regarded as the most baffling of all speech disorders. Thought on this subject has undergone a revolution in recent years. Research workers now realize what stammerers always knew: that the defect is really psychic. The authors realize that the psychological aspect is the core of the problem, and correctly pay due regard to reeducative and environmental influences in treating the complaint. But it is doubtful whether they have a sufficient appreciation of the fear complex and inhibitory ramifications which are the basic and conditioning influences of the stammer. The preschool stammer might be regarded as a halo with psychogenetic origin in contradistinction to a neurosis, a lack of confidence which becomes "fixed" into dread and fear of failure. However, the whole problem of the treatment of children's speech disorders is in its infancy, as the authors agree. It has been their aim to lay down broad "therapeutic" principles rather than give detailed remedial exercises. It is interesting to note the increasingly important part played by the oscillograph and other appliances in recording the phenomena of speech. The diagrams in the books are particularly clear.

[1] "Speech in Childhood: Its Development and Disorders", by G. Seth, M.A., B.Ed., Ph.D., and D. Guthrie, M.D., F.R.C.S.E., F.R.S.E.; 1935. London: Humphrey Milford (Oxford University Press). Demy 8vo, pp. 234, with illustrations. Price: 10s. 6d. net.

The Medical Journal of Australia

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THE ROCKEFELLER FOUNDATION.

THE report of the Rockefeller Foundation for 1934, recently to hand, is an interesting document. The work of the Foundation is known to Australian medical practitioners chiefly through the activities of the International Health Division. It covers, however, a much wider field than that of the Health Division, and reflects the wisdom and vision of its controlling officers. The Rockefeller Foundation is chartered to promote the well-being of mankind throughout the world, and it has at its disposal upwards of £35,000,000, the gift of John D. Rockefeller. Its four spheres of activity, apart from the International Health Division, are those of the medical sciences, natural sciences, social sciences, and the humanities. These spheres of activity were determined in 1929, when the new Foundation was formed. (The Rockefeller Foundation was originally organized in 1913.)

Broadly speaking, the projects of the International Health Division are of three types. Emphasis is laid chiefly on promotion of the control of specific diseases by means of field investigations, practical demonstrations and laboratory research; the chief diseases studied are yellow fever, malaria, hookworm disease, and also yaws, tuberculosis and diphtheria. A second phase of the work involves aid to governments to put health work on a permanent basis; in this regard the Foundation merely initiates and exemplifies modern methods of health promotion; it leaves the task of carrying the work to fulfilment to the governments concerned. The third phase deals with public health education. In the field of medical science chief interest is centred in mental health, and support is given for research and its applications, as well as for the training of personnel. In natural science support is given to studies "in the broad field of modern analytic biology directed towards the correlation of physical and mental growth, and genetic development". In social science help is given to objective studies of selected problems of social control; these include those relating to economic security—problems of the business cycle and problems arising from attempts to ameliorate the effects upon the individual of economic instability. In regard to the humanities, an effort is made to extend public appreciation and participation in cultural activities and to foster international cultural understanding.

It is to the last-mentioned sphere of activity that we would particularly draw attention. The general support of humanistic studies has been given within the United States of America alone, and there only to a limited number of institutions. A great deal of the work has been done through the American Council of Learned Societies. Stress has been laid on the study in American universities of Far Eastern languages, particularly Japanese, Chinese and Russian; on the development of teaching ability and enduring interest in Far Eastern art, philosophy and literature; and on the cooperative employment of Chinese, Japanese and American workers on problems of mutual scholarly interest. By means of fellowships junior staff members have been enabled to study in research libraries in other countries. During the year 1934 fifty-one American scholars were actively engaged in humanistic research supported by grants-in-aid: eight in art

and archæology, twenty-eight in philology and literature, two in linguistics, seven in history, one in history of science, one in Far Eastern studies, one in Near Eastern studies, and three in miscellaneous projects. Certain help was given outside America: Professor W. C. Dickinson, of the London School of Economics and Political Science, studied administrative methods of American libraries; Professor Daniel Jones, of the University of London, carried out research in American phonetics; the librarian of the Bodleian Library of the University of Oxford and the architect engaged on the extension to the Bodleian Library visited America and Europe for purposes of study. Mention must also be made of grants given towards the cultivation of dramatic art. Other activities of the Rockefeller Foundation in the realm of the humanities have not been mentioned. It will suffice to show that the Rockefeller Foundation regards the humanities as of the utmost importance.

During the last few years the income of the Rockefeller Foundation from its investments has been curtailed and it has had some difficulty in carrying out its programmes. That it has not in these circumstances discarded its cultural activities will doubtless be surprising to some people; it will not be surprising to those who know that culture gives a solid background to every human endeavour, and perhaps to science and medicine more than to any other activity. Culture, what it means and how it may be attained, must be discussed on some other occasion. Those who, like the Rockefeller Foundation, are concerned with the "well-being of mankind throughout the world", would be glad to see the humanistic activities of the Foundation extended further beyond the boundaries of the United States of America.

Current Comment.

THE MINERAL METABOLISM IN GENERALIZED DISEASES OF BONES.

OUR knowledge of generalized diseases of bones is still very imperfect, but it owes much to the energy and insight of those who have carried out researches in biochemistry in the last decade or two. Donald Hunter, whose work on parathyreoid diseases is well known, has recently summarized the present position as regards those bone diseases in which the calcium and phosphorus metabolism is disturbed.[1] While there is nothing new in this communication, it contains the views of a recognized authority, and much first hand information with a number of instructive case histories. Hunter remarks first on the necessity for studies of the calcium phosphorus balance in these diseases, pointing out that the mere levels of these substances in the blood give no information as to their destination. He draws the analogy of a river: the observation of the level of the river gives no indication of its direction; so with a study of the minerals in the blood current, we need to know not only their concentration, but whether they are flowing out or in.

Generalized *osteitis fibrosa* is one of the most interesting of diseases thus studied. Those who have seen these cases cannot but be struck by their features: the pain and tenderness of the bones, often a most troublesome feature, the tendency to fracture, the deformities, the hypotonia, the digestive disturbances, the liability to renal calculus. The diagnosis is made certain, however, only by the finding of a high serum calcium, a low plasma phosphorus, but high phosphatase, and an increased calcium loss from the body. These well known facts need no stressing, but it is encouraging to read of Hunter's high proportion of successful cases, the results after removal of a parathyreoid tumour being very satisfactory. But he raises some points. Why do these patients lose their pain so soon after successful operation? And is there a possibility of a recurrence of symptoms due to hyperplasia of the remaining parathyreoid tissue? The study of one case at least suggests this possibility. This leads us to inquire into the cause of the tumour of the parathyreoid. These questions cannot yet be answered.

It is also interesting to be reminded that, though the mortality of operations on the parathyreoids is low, *per se*, these procedures are justifiable only when a real indication exists. Focal *osteitis fibrosa*, for example, is much more common, and though relatively non-disabling, may cause spontaneous fractures. There is no evidence that this is in any way due to a hyperparathyreoidism, and exploration of the neck in these cases is fruitless. So, too, in *osteitis deformans*, so called, for it is not an inflammatory disease; there is no warrant for operation. This curious disease, which has a slowly deforming effect on the limbs, pelvis, and head in particular, and which causes a varying degree of pain and discomfort, is apparently a disorder of mineral metabolism, but its nature is as yet obscure, and we have no reliable means for its relief.

The osteoporosis of thyreotoxicosis is also mentioned by Hunter. He has found that controlled radiograms of the bones in toxic goitre reveal poverty of calcium in only less than half the cases

[1] *Proceedings of the Royal Society of Medicine*, October, 1935.

examined. In these the calcium excretion returns towards the normal and some increase in the density of the bones occurs after adequate treatment of the hyperthyreoidism. Hunter believes that the osteoporosis is associated with the thyreotoxicosis and it may be due to the effect of thyroxin on the organism. This cannot be regarded as settled; Hansman, for example, in his contributions to this journal, has brought forward data to prove that there is no parallel between the degree of hyperthyreoidism and the amount of the calcium loss, and postulates a coexistent hyperparathyreoidism. Another important disease mentioned by Hunter is osteomalacia. The form due to a sheer dietary deficiency is not likely to be seen here, but it may occur, and metabolic studies can settle the diagnosis. The other variety is more important, being due to idiopathic steatorrhœa, or Gee's disease, which is without doubt sometimes overlooked.

One other bone disturbance dealt with by Hunter deserves mention—osteoporosis associated with renal glycosuria. Here it is suggested that the kidney fails to hold back phosphorus and calcium, as it does sugar, the plasma phosphorus falling too low in concentration to enable normal bone formation to take place. Two cases were studied, and a search for a parathyreoid tumour was thought to be justified on account of the greatly increased calcium output, though the level of the serum calcium was but slightly raised. No tumour was found and the clinical condition remained unaltered.

The most important moral to be drawn from a consideration of this work is that estimation of the calcium phosphorus metabolic balance has become a procedure of clinical importance. Work that appeared perhaps at first sight to be academic, that is certainly most wearying and the reverse of dramatic in its technical details, has proved its practical value, a fact that should be remembered by all interested in the scientific side of medicine.

WHITE BILE.

ONE of the curiosities of abdominal surgery is the "white bile" sometimes found in the biliary tract when its contents have been dammed up by some obstruction. This secretion may be found, according to the actual site of the obstruction, in the dilated gall-bladder or in the dilated biliary ducts, where these have been isolated from the gall-bladder. There is such an obvious contrast between this strangely limpid fluid and the normal bile that analyses have been made of it and speculations have been indulged in as to the fate of the biliary salts and pigments. C. Riegel, I. S. Ravdin, C. G. Johnston, and P. J. Morrison, in the course of a series of studies on gall-bladder function, have been able to demonstrate that when the bile-free gall-bladder of the dog is damaged, there is a retardation of the rate of water absorption till at last fluid, instead of being absorbed, is actually poured into the gall-bladder.[1] This fluid strongly resembled in composition white bile obtained in the human subject under the conditions described above. It was believed to be formed by the mucosal cells lining the extrahepatic biliary system. It is significant that in this experiment it was essential that the gall-bladder should be damaged, for this links up with the belief of some authorities that infection plays a part in the formation of white bile. The present authors were fortunate in that they were able to secure no less than fifteen specimens of hydrops fluid from operations on the bile passages, and in two cases they were able to study the secretion from the gall-bladder for several days after operation. In every case bile salts and pigment were entirely absent; cholesterol was present only in small amounts, if at all; chlorides were present in approximately the same concentration as in the blood serum. Calcium was found in amounts corresponding with the blood levels in two-thirds of the cases, but in the remainder its concentration rose considerably above this. The reason for this calcium retention was not apparent.

There are some curious features in the composition of this fluid apart from the calcium anomaly. These have been discussed by J. Patterson, in analysing a specimen for N. C. Lake, who published an interesting illustrative case last year.[2] He pointed out that while the hydrops fluid is apparently a physiological secretion utilized in maintaining the biliary circulation, it seems improbable that it would continue to be formed under pressure, as appears to be the case when complete obstruction of the ducts exists. On the other hand the loss of bile pigments he regards as pathological, and not due to a simple absorption, as this could hardly be complete. As Lake pointed out in describing his case, the contrast between the deeply stained dilated ducts and the colourless fluid they contained is most striking. E. Melchior has recently drawn attention to the fact that there are two classes of case in which white bile may be formed: one in which the liver still secretes coloured bile, later decolorized; the other in which there is a true failure of the liver cells.[3] Whether this distinction can always be clearly made is not certain, but it is most important to recognize the possibility, indeed probability, of damage to the liver cells, either primary or secondary. The whole question of prognosis is bound up with the integrity of the liver cells, and for this reason caution is most necessary. Where the common bile duct is found to be distended and filled with white fluid, which may be milky or water-clear, and particularly where there is reason to fear that biliary obstruction has existed for some time, there is probably some degree of hepatic damage, and a favourable outcome is by no means assured.

[1] *The American Journal of the Medical Sciences*, November, 1935.
[2] *The Lancet*, October 6, 1934.
[3] Quoted in *The Lancet*, November 2, 1935, page 1012.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Nature of the Clotting Deficiency in Hæmophilia.

HARRY EAGLE (*Journal of General Physiology*, July, 1935) describes experiments which seem to show that the delayed coagulation observed in hæmophilic blood is due to an unexplained retarded activation of prothrombin to thrombin. He remarks that numerous explanations, recently summarized by Wöhlisch, have been offered for the delayed coagulation observed in hæmophilia, the presumable cause of the bleeding tendency. According to Sahli, Nolf, Morawitz, Minot and Lee, Howell and Cekada, and Christie, the platelets of hæmophilic blood are excessively stable, failing to disintegrate and yield the platelet factor essential for coagulation. However, Addis Klinger and more recently Feissly and Fried maintain that the platelets are functionally normal. The two last mentioned find hæmophilic blood to be deficient in prothrombin; this deficiency presumably explains the retarded coagulation. Addis, however, reports a qualitative difference in so far as the prothrombin of hæmophilic blood, although normal in quantity, is more slowly activated by calcium and the cell factor to form thrombin. The author compared the platelets of normal and hæmophilic blood quantitatively with respect to their effect upon the coagulation of platelet-free horse or human plasma, and found that they were indistinguishable. Both types of platelet suspension accelerated coagulation to the same degree, and both accelerated the production of thrombin from prothrombin to the same degree, no matter what type of plasma was used, whether oxalated, citrated, horse, rabbit, normal human or hæmophilic. Secondly, he found no difference in the prothrombin contents of normal and hæmophilic plasma, both ultimately developing the same quantity of thrombin upon the addition of platelets and calcium. Thirdly, he found that normal and hæmophilic plasma were equally coagulable by thrombin, indicating that they do not differ in their antithrombin activity. The one fundamental difference between hæmophilic and normal plasma, acording to these experiments, is the fact that the rate of thrombin production in hæmophilic plasma or in solutions of prothrombin derived from such plasma, is very much slower than in normal plasma. This furnishes an adequate explanation of the delayed coagulation time and prolonged bleeding. As might be expected, therefore, if an excess of platelets, whether normal, hæmophilic or animal in origin, is added to hæmophilic plasma prior to recalcification, it coagulates normally, and if a large excess of platelets is used, hæmophilic plasma can be made to coagulate even more rapidly than normal plasma. By adding 0·2 cubic centimetre of a concentrated suspension of horse platelets to one cubic centimetre of hæmophilic plasma, the original coagulation time of which, before removal of its own platelets by prolonged centrifugation, was 135 minutes, the author succeeded in bringing about coagulation in six and a half minutes. He found, contrary to his expectations, that cephalin is ineffective when added to hæmophilic plasma, despite the fact that it accelerates thrombin production in normal plasma. The cause of the delayed activation of the prothrombin of hæmophilic plasma, in spite of the fact that it is present in normal concentration and that the platelets function normally, is still speculative. The prothrombin may be deficient in an essential activating factor, or, as suggested by Fuchs, there may be an inhibiting factor analogous to heparin.

Variations in Muscle Tonus.

EDMUND JACOBSON (*American Journal of Physiology*, September, 1935) has investigated variations in muscular tonus and finds that the use of the term tonus in the traditional sense for striped muscle does not seem warranted. The definition of tonus as the slight contraction present in intact or healthy muscle even during resting states is founded chiefly in the interpretation of postures and other gross phenomena, rather than on direct measurement. Extremely sensitive voltage testing equipment now makes it possible to go into this question directly in terms of action potentials. Apparatus is available capable of detecting transient voltages to within a major fraction of a microvolt in frequencies higher than thirty per second, but to a considerably higher microvoltage in lower frequencies. The results in numerous measurements in striped muscle of man, the dog and the frog fail to sustain the traditional view. During quiet states in these organisms practically no vestige of tension is detected for periods of minutes at a time. From an energy standpoint it is obvious that if voltages are so extremely slight as to be less than the errors in these methods of measurement, contraction is doubtless physiologically negligible, if not absent altogether. On the other hand, when the resting individual or animal appears grossly quiet, marked action potentials in various muscles often disclose that the inactivity is far from complete. According to the traditional view, tonus in striped muscle favours speed of response to stimuli. The author has performed tests on reaction times in man, and these bear out the traditional view in that they disclose an increased speed if there is preliminary slight contraction rather than complete relaxation in the reacting muscle, but this increase is strikingly small; the completely relaxed muscle can nevertheless respond promptly. Since the use of the term tonus in the traditional sense for striped muscle does not seem warranted, it is suggested that tonus in striped muscle be redefined as meaning a state of slight contraction, more or less constant or irregular, often present but sometimes absent in health.

The Effect of Reduced Atmospheric Pressure on the Leucocyte Count of the Rat.

DESPITE the uniformity of results obtained by many investigators concerning the erythrocyte and hæmoglobin responses to reduced oxygen tension, there have been relatively few studies made of the leucocytes under similar conditions, and the reports that have been made are not concordant. O. Meyer, M. H. Seevers and S. R. Beatty (*American Journal of Physiology*, September, 1935) record the observation that normal rats kept at a reduced atmospheric pressure developed early leucocytosis followed by a persistent leucopenia, with a concomitant increase in hæmoglobin, erythrocytes and reticulocytes. The changes in the differential leucocyte count were not consistent. The authors suggest that the temporary leucocytosis following a reduction in barometric pressure is principally due to the emptying of reservoirs of cells, such as the spleen, liver and lungs, whereas the subsequent leucopenia results from a functional depression of the bone marrow and lymph nodes which prevents a delivery of leucocytes to the circulating blood. The differences in the leucocytic responses to reduced atmospheric pressure in early leucocytosis and later leucopenia appear to be due solely to the element of time. This factor of acclimatization may well explain the discordant results of some of the previous observers. Leucocytosis with an increase in neutrophile cells occurred within twenty-four hours at a pressure of 422 millimetres of mercury. At the end of one week the total number of leucocytes was decreased, though not to the control level. At the end of the second week distinct neutropenia was present.

The Occurrence of Several Kinds of Hæmoglobin in Human Blood.

THE remarkable difference in natal and adult human hæmoglobin has been described by various authors. All agree that the fœtal type of human hæmoglobin is no longer present at about seven months after birth, and also that the difference in alkaline resistance of fœtal and older hæmoglobin is found only in human blood. R. Brinkman and J. H. P. Jonxis (*Journal of Physiology*, October 26, 1935), working at the biochemical

laboratory and the pædiatric clinic, Gröningen, Holland, have investigated a third form of human hæmoglobin, the "alkali-resistant type" which appears at the age of about three years and which remains present in adult life. This additional form of hæmoglobin is found only in human blood. The change in type of hæmoglobin from birth to advanced childhood was studied by photo-electric measurement of the rate of alkaline denaturation, and the results were confirmed by an entirely different method, namely, the determination of the iso-electric points of monolayers of hæmoglobin by means of the spreading technique. The authors claim that their technique is more precise than that of previous workers in this field. Their methods are described in detail in their paper. They claim that by these methods three forms of human hæmoglobin have been found. One type is present in fœtal blood; this is completely replaced by the less resistant adult form at about seven months after birth. At three years of age a "resistant" type of adult hæmoglobin makes its appearance and remains present in adult life. The technique used by these authors indicates large differences between fœtal and maternal human hæmoglobin and also distinguishes between the species variations; but so far it has given no indication of more than one hæmoglobin in any animal species except man. Chemical differences in the globins of fœtal and adult human hæmoglobin have been discovered by Schenk and by Lang; they also find that the globin of adults has no constant composition. The authors suggest that this might be explained by the variation in percentage of the resistant type of hæmoglobin found in adults.

BIOLOGICAL CHEMISTRY.

The Effect of Vitamin D on the Calcium Content of the Dentine.

IT has been recognised for many years that rickets and the acute exanthemata in infancy may cause severe hypoplasia of the dental enamel. More recently Mellanby has shown that this condition and also hypoplasia of the dentine can be produced in the laboratory dogs by depriving the animals of vitamin *D* and inducing experimental rickets at the time when the enamel is being laid down. It has been claimed, too, that therapeutic doses of vitamin *D* will both prevent and arrest dental caries. There is no experimental evidence, however, that the exhibition of vitamin *D* produces any effect on either dentine or enamel once it is formed. The suggestion that the exhibition of vitamin *D* prevents or arrests dental caries depends on two assumptions: (i) The exhibition of the vitamin will increase the calcium content of the dentine. (ii) An increased calcium content of the dentine will prevent or arrest caries. There is no experimental evidence that either of these assumptions is correct; indeed it has been found impossible to affect the calcium content of the dentine in any way whatever. E. Wilfred Fish (*Journal of Physiology*, June 18, 1935) records a further unsuccessful attempt to alter the calcium content of the dentine by giving heavy doses of vitamin *D* and calcium over a longer period than in his previous experiments. Three dogs were given maximal doses of vitamin *D* together with calcium carbonate over periods varying from 60 to 135 days. The doses of vitamin *D* ranged from 50,000 to 75,000 units per day. Two teeth were excised from each animal at the beginning of the experiment and the two symmetrically opposite teeth were removed at the end. A specimen of the central mass of the dentine was prepared from each tooth and analysed. Analyses of teeth excised before and after the experiment showed either no change in the calcium content of the dentine, or changes so slight as to fall within the normal range of individual tooth variation. Skiagrams of the bones showed an increase in their opacity to X rays, and histologically there appeared to be new deposits of highly calcified bone matrix, but there were no apparent changes in the other tissues examined. The blood calcium was markedly increased, rising in two places to 19·6 and 21·1 milligrammes *per centum* respectively. At the end of the experiments, which lasted 34, 65 and 165 days respectively, each dog was found to be losing condition and refusing food and was killed.

Blood Cholesterol and Low Caloric Diets in the Obese.

C. A. POINDEXTER AND M. BRUGER (*Archives of Internal Medicine*, November, 1935) have investigated the effect of low caloric diets and of the resultant loss of weight on plasma cholesterol in the obese. They observed thirty subjects. These subjects were placed on a low caloric diet and their body weight and plasma cholesterol content were determined at more or less regular intervals for from six to sixty weeks. They find that the cholesterol content of the plasma in uncomplicated obesity and in obesity complicated by metabolic, arthritic or endocrine disease is not altered primarily by reduction in weight with a low caloric diet. At times the initial high plasma cholesterol content of the obese patient with complicating degenerative disease may show a significant decrease following reduction in weight on a low caloric diet. This fall in the blood cholesterol content is due, not to a diminution in body weight, but secondarily to changes in the clinical condition of the patient. These changes include improvement in carbohydrate tolerance in the obese patient with *diabetes mellitus*, the onset of cardiac decompensation in the obese patient with hypertension *et cetera*. In some obese subjects the institution of low caloric diets is accompanied by a definite increase in the amount of plasma cholesterol for two or three weeks. The authors assume that this elevation of the blood cholesterol content represents the so-called starvation effect, an observation that has been recorded previously in man and in animals.

The Renal Threshold for Dextrose.

J. W. SHERRILL AND E. M. MACKAY (*Archives of Internal Medicine*, November, 1935) have investigated the renal threshold for dextrose in man. They observed ten persons suffering from diabetes and eleven persons without known abnormalities in their carbohydrate metabolism and with apparently normal kidneys. They give details of the methods used. They conclude that the threshold as a "normal figure" is a misnomer. That a given subject has his own particular level above which sugar appears in the urine is probable, provided the conditions are the same each time. In ordinary circumstances the figure found simply represents the situation as it exists at that particular moment. A normal average for the renal threshold should never be given, for it may be misleading. For practical purposes the renal threshold for dextrose is of clinical interest only when dextrose is detected in the urine, for this indicates either hyperglycæmia or a so-called renal diabetes. In the absence of sugar from the urine qualitatively the renal threshold has no place.

Zinc in Nutrition.

F. E. STIRN, C. A. ELVEHJEM AND E. B. HART (*Journal of Biological Chemistry*, April, 1935) have found that in the rat zinc is indispensable for normal growth. Extreme care used in the preparation of the diets enabled them to reduce the daily intake of zinc to less than fifteen microgrammes per rat when the ration was fed *ad libitum*. Control animals receiving the same diet with added zinc (6 milligrammes per 100 grammes of ration) grew well. On the zinc-low diet growth was poor, the animals were extremely active and hyperirritable, the fur became soft and woolly, and the black hairs became light grey in colour. No specific pathological disturbances were detected. Analyses of the carcasses for dry matter indicated that the added zinc produced extra body tissue with no increase in water content. It is suggested that zinc is probably essential to all animals, although the difficulty in preparation of a zinc-low diet indicates that most natural rations contain sufficient of this element.

British Medical Association News.

ANNUAL MEETING.

THE annual general meeting of the Victorian Branch of the British Medical Association was held at the Medical Society Hall, East Melbourne, on December 4, 1935, DR. R. M. DOWNES, the President, in the chair.

ELECTION OF OFFICE-BEARERS AND MEMBERS OF COUNCIL.

The President announced that the Council had elected the following office-bearers:

President: Dr. Walter Summons.
Senior Vice-President: Professor R. Marshall Allan.
Junior Vice-President: Dr. J. P. Major.
Chairman of Council: Dr. J. Newman Morris.
Honorary Treasurer: Dr. C. H. Mollison.
Honorary Secretary: Dr. F. Kingsley Norris.
Honorary Librarian: Dr. R. H. Fetherston.

The President announced that the following had been elected members of the Council by the general body of the members: Professor R. Marshall Allan, Dr. H. C. Colville, Dr. John Dale, Dr. A. P. Derham, Dr. R. M. Downes, Dr. D. M. Embelton, Dr. Mark Gardner, Dr. J. S. Green, Dr. Victor Hurley, Dr. L. S. Latham, Dr. F. Kingsley Norris, Dr. H. Douglas Stephens, Dr. B. M. Sutherland, Dr. B. T. Zwar.

The President announced that the following had been elected by the subdivisions: Dr. F. J. Bonnin, Dr. W. F. Brownell, Dr. J. A. Cahill, Dr. A. E. Coates, Dr. R. L. Fulton, Dr. H. Boyd Graham, Dr. J. J. Kelly, Dr. J. P. Major, Dr F. E. McAree, Dr. D. W. Neville, Dr. S. J. Newing, Dr. D. C. Pigdon, Dr. T. O. Sayle, Dr. W. A. Spring, Dr Walter Summons, Dr. S. F. Sutherland.

The President announced that Dr. F. L. Davies, Dr. R. H. Fetherston, Dr. C. H. Mollison and Dr. J. Newman Morris were the *ex officio* members of the Council.

The representative of the Victorian Medical Women's Society was Dr. Jane S. Greig.

The President announced that the following had been coopted as members of the Council: Dr. A. Newton, Dr. D. Roseby and Dr. G. Weigall.

INDUCTION OF PRESIDENT.

Dr. R. M. Downes inducted the newly elected President, Dr. Walter Summons, to the chair.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council, having been circulated, was taken as read and adopted. The report is as follows:

The Council of the Branch and the Committee of the Society present the fifty-sixth annual report of the Branch and the eightieth of the Society.

Election.

At the annual meeting held last December the following members of the Council and of the Committee were elected: Professor R. Marshall Allan, Dr. H. C. Colville, Dr. John Dale, Dr. A. P. Derham, Major-General R. M. Downes, Dr. D. M. Embelton, Dr. Mark Gardner, Dr. J. S. Green, Dr. Victor Hurley, Dr. L. S. Latham, Dr. F. Kingsley Norris, Dr. H. Douglas Stephens, Dr. B. M. Sutherland and Dr. B. T. Zwar.

The following were elected to represent the subdivisions: Dr. F. J. Bonnin, Dr. W. F. Brownell, Dr. J. A. Cahill, Dr. G. R. Davidson, Dr. C. H. Dickson, Dr. R. L. Fulton, Dr. O. B. Goyen, Dr. J. J. Kelly, Dr. J. Le M. Kneebone, Dr. J. P. Major, Dr. F. E. McAree, Dr. D. W. Neville, Dr. S. J. Newing, Dr. D. C. Pigdon, Dr. Walter Summons, Dr. Gerald Weigall, Dr. J. F. Wilkinson and Dr. Ian J. Wood.

The Council, under Rule 8, coopted Dr. G. A. Birnie, Dr. D. Roseby and Dr. J. H. Shaw, and elected Dr. Constance Ellis, nominated by the Victorian Medical Women's Society.

The Trustees of the Medical Society of Victoria are members *ex officio*.

The following members were appointed by the Council during the year to vacancies caused by death and resignation: Dr. H. Boyd Graham, Dr. W. A. Spring and Dr. S. F. Sutherland.

The Council elected the following office-bearers:

President: Major-General R. M. Downes.
Vice-Presidents: Dr. Walter Summons and Professor R. Marshall Allan.
Honorary Secretary: Dr. J. P. Major.
Assistant Honorary Secretary: Dr. Ian Wood.
Honorary Treasurer: Dr. C. H. Mollison.
Chairman of Council: Dr. J. Newman Morris.
Honorary Librarian: Dr. R. H. Fetherston.

The Executive consists of the President, with other office-bearers, and the immediate Past-President, Dr. Gerald Weigall.

Attendances at Council Meetings.

There were eleven ordinary and one special meeting of the Council, and the following shows the attendances:

Prof. R. Marshall Allan	12	Maj.-Gen. R. M. Downes	9
Dr. W. F. Brownell	12	Dr. Mark Gardner	9
Dr. J. A. Cahill	12	Dr. F. E. McAree	9
Dr. V. Hurley	12	Dr. B. T. Zwar	9
Dr. J. Newman Morris	12	Dr. John Dale	8
Dr. Walter Summons	12	Dr. H. Boyd Graham[1]	7
Dr. F. Kingsley Norris	12	Dr. John S. Green	7
Dr. J. P. Major	12	Dr. D. C. Pigdon	7
Dr. Constance Ellis	12	Dr. John Shaw	7
Dr. F. L. Davies	11	Dr. L. S. Latham	6
Dr. R. H. Fetherston	11	Dr. S. J. Newing	6
Dr. C. H. Mollison	11	Dr. S. F. Sutherland[1]	5
Dr. Gerald Weigall	11	Dr. R. L. Fulton	4
Dr. H. C. Colville	10	Dr. J. J. Kelly	4
Dr. D. M. Embelton	10	Dr. J. Le M. Kneebone	3
Dr. D. Roseby	10	Dr. D. W. Neville	3
Dr. H. Douglas Stephens	10	Dr. J. F. Wilkinson[1]	3
Dr. B. M. Sutherland	10	Dr. W. A. Spring[1]	1
Dr. Ian Wood	10	Dr. O. B. Goyen	1
Dr. G. A. Birnie	9	Dr. F. J. Bonnin	0
Dr. A. P. Derham	9		

The average attendance at each meeting was 27, and the highest attendance for any one meeting was 33.

Appointment of Subcommittees.

The following subcommittees were appointed by the Council (the first-named acting as convener of that subcommittee):

Ethics: Dr. Major, Dr. Davies, Dr. Fetherston, Dr. Latham, Dr. Pigdon, Dr. Sutherland, Dr. Wilkinson, Dr. Zwar and the Executive.

Finance, House and Library: Dr. Mollison and Dr. Fetherston.

Legislative: Dr. Colville, Professor Allan, Dr. Davies, Dr. Green, Dr. Morris, Dr. Newing, Dr. Norris, Dr. Roseby and Dr. Wood.

Organization: Dr. Roseby, Dr. Brownell, Dr. Birnie, Dr. Cahill, Dr. Gardner, Dr. Graham, Dr. Green, Dr. McAree, Dr. Major, Dr. Newing, Dr. Pigdon, Dr. Shaw, Dr. Summons, Dr. B. M. Sutherland, Dr. Weigall, Dr. Wilkinson and representatives of country subdivisions.

Public Health and Public Questions: Dr. Gardner, Professor Allan, Dr. Brownell, Dr. Cahill, Dr. Dale, Dr. Derham, Dr. Ellis, Dr. Embelton, Dr. Norris, Dr. Roseby, Dr. Summons and Dr. Stephens.

Services: Major-General Downes, Dr. Dale, Dr. Derham, Dr. Fetherston, Dr. Green, Dr. McAree and Dr. Shaw.

[1] Member of Council for portion of year only.

Science: Dr. Wood, Dr. Colville, Dr. Downes, Dr. Ellis, Dr. Hurley, Dr. McAree, Dr. Norris and Dr. Stephens.

Hospital: Dr. Zwar, Professor Allan, Dr. Birnie, Dr. Gardner, Dr. Hurley, Dr. Latham, Dr. Norris, Dr. Shaw, Dr. Embelton and Dr. Neville.

Standing Insurance: Dr. Embelton, Dr. Davies, Dr. Hurley, Dr. Major, Dr. Mollison and Dr. McPhee.

Correspondence: Dr. Major and Dr. Morris.

Social: Dr. Roseby and Dr. McAree.

Special Committees.

Early Medical History: Dr. Shaw, Dr. A. G. Black, Dr. Fetherston, Dr. Meyer, Dr. Kenny, Dr. Norris and Dr. A. J. Wood.

Yallourn: Dr. Wilkinson, Dr. Davies, Dr. Major, Dr. Morris, Dr. Robertson, Dr. Sutherland and Dr. Zwar.

Appointments and Nominations.

President, British Medical Association, 1935-36: Sir James W. Barrett.

Central Council, British Medical Association: Sir Thomas Dunhill.

Federal Council: Dr. Davies and Dr. Morris.

Victorian Bush Nursing Association: Dr. B. M. Sutherland and Dr. Weigall.

City Electoral Roll: Dr. Hurley, Dr. Major and Dr. Shaw.

Free Kindergarten Union: Dr. Weigall.

Victorian Baby Health Centres' Association: Dr. Derham.

Melbourne University Association: Dr. Stephens.

Victorian Institute of Hospital Almoners: Dr. Morris.

Lord Mayor's Fund: Dr. Morris.

Medical Advisory Committee, Education Department: Dr. Zwar.

Victorian Council for Mental Hygiene: Dr. Dale and Dr. Derham.

Melbourne Permanent Post-Graduate Committee: Dr. Hurley, Dr. Major and Dr. B. M. Sutherland.

Big Brother Movement: Dr. Weigall.

The Society for Health of Women and Children: Dr. B. L. Stanton.

Medical Officers' Relief Fund Advisory Committee: Dr. Mollison, Dr. Davies and Dr. Upjohn.

Australian Aerial Medical Services: The President.

Nurses' Board: Dr. R. W. Chambers.

Sixth Australian Cancer Conference: Dr. Morris.

Dietetic Association of Victoria: Dr. Dale.

Society for Crippled Children: Dr. Norris.

Standing Appointments.

Trustees of the Medical Society of Victoria: Dr. Davies, Dr. Fetherston, Dr. Mollison and Dr. Morris.

The Advisory Committee to the Charities Board: Dr. Hurley, Dr. Embelton, Dr. Latham, Dr. Morris, Dr. McPhee and Dr. Zwar.

Queen's Memorial Infectious Diseases Hospital: Dr. Morris.

Victorian Correspondent, "The British Medical Journal": Dr. Derham.

Victorian Correspondent, "The Medical Journal of Australia": Dr. Graham.

British Medical Agency Company of Victoria Proprietary Limited: Directors, Dr. Mollison (Chairman) and Dr. Fetherston; Managing Director, Mr. W. Ramsay.

British Medical Insurance Company of Victoria: Directors, Dr. Mollison (Chairman), Dr. Fetherston, Dr. Hughes and Dr. Morris; Secretary, Mr. A. M. Ford.

Masseurs' Registration Board: Major-General Downes and Dr. W. W. S. Johnston.

Membership Roll.

The number of members on the roll is 1,330, which is 37 more than that of last year; 97 names were added (59 by election, 18 who paid arrears, and 20 by transfer into the Branch); 60 were removed (15 by death, 4 by resignation, 25 by transfer out of the Branch and 16 who allowed their subscriptions to fall into arrears).

Three associates have been added to the list and 5 removed by death, making a total of 30.

Death of the following members and associates is recorded with regret: Dr. J. B. Backhouse, Dr. T. H. Boyd, Dr. F. Hobill Cole, Dr. J. W. Dunbar Hooper, Dr. S. C. Joel, Dr. J. W. Kennedy, Dr. F. C. Langlands, Dr. Joseph Love, Dr. J. S. Mackay, Dr. Alex. G. Mancy, Dr. H. St. J. Mitchell, Dr. F. J. Owen, Dr. L. L. P. Paterson, Dr. D. Montgomerie Paton, Dr. A. C. Pedler, Dr. P. J. Rockett, Sir Richard Stawell, Dr. Stella Symes, Dr. Johnstone S. Thwaites and Dr. J. F. Wilkinson.

Reports of Subcommittees.

The Council resolved that attendances of members at subcommittee meetings should be published in the annual report, but it should be borne in mind that members of the Council have had other duties to perform, and in some instances were members of subcommittees which met at the same time.

Ethics Subcommittee.

The subcommittee met eleven times. The following were the attendances:

Dr. Davies	11	Dr. Summons	8
Dr. Fetherston	10	Dr. Wood	8
Dr. Morris	10	Dr. Zwar	5
Dr. Weigall	10	Dr. Latham	4
Maj.-Gen. Downes	9	Dr. B. M. Sutherland	3
Prof. Allan	9	Dr. Wilkinson	1
Dr. Major	8	Dr. Mollison	0
Dr. Pigdon	8		

During the year action was taken to insure that no undue publicity be given in the lay Press to papers read at the sectional meetings in connexion with the annual meeting, and future congresses where medical subjects are discussed.

It was decided in future that applicants for membership should fill in a *questionnaire* disclosing previous membership of other branches *et cetera*.

As dissatisfaction had arisen from the non-inclusion of names of certain members under specialist sections in the classified pages of the telephone directory, steps have been taken to have these sections deleted in future issues.

Members were informed that if a patient expresses a preference for a consultant of good repute, qualifications and standing in the profession, it is not unethical for the patient's medical attendant to insist on another consultant being called in, but the final choice of consultant must be governed by the circumstances of each particular case.

The Medical Defence Association has been asked to give a ruling on the legal position of unqualified persons acting as anæsthetists.

Organization Subcommittee.

The subcommittee met ten times. The following were the attendances:

Dr. Roseby	10	Dr. Birnie	4
Dr. Cahill	8	Dr. Gardner	4
Dr. Brownell	7	Dr. Green	3
Dr. Summons	7	Dr. Newing	3
Dr. Graham	6	Dr. Pigdon	3
Dr. Shaw	6	Dr. B. M. Sutherland	3
Dr. Weigall	6	Dr. Major	2
Dr. McAree	5	Dr. Wilkinson	2

Several cases of underpayment of lodge medical officers and provision of incomplete lodge lists have been adjusted through the grand lodges.

Further representations to the Closer Settlement Board have resulted in increased payment being made to medical practitioners giving service to farmers under lien to the Closer Settlement Board. The full details have been circularized to members.

It was decided during the year that no extension of honorary medical services could be made to persons employed by the Association for the Advancement of the Blind, and the Association has agreed to pay for services rendered on the same basis as for persons under the Wasley Award.

A member inquiring as to his right to charge lodge patients for consultations with his partner was informed that, as the lodge lists were in the name of the partnership, he had no legal power to collect a fee for such services.

In the past there has been some ambiguity regarding the fees payable by female lodge members, and a circular has been issued showing the correct rates applicable to the different lodges.

Several medical officers of health have had their salaries increased as a result of certain action taken by this Association.

A request from the Charities Board for consent to reduction of the intermediate scale of fees was not approved.

A member was informed that the non-surgical treatment of fractures, whether in hospital or home, could not be charged for under the terms of the Wasley Award.

A proposal to establish suburban out-patient dispensaries in connexion with public hospitals was disapproved.

A hospital superintendent was informed that the police should not bring cases to hospital with a view to securing medical evidence of sobriety or otherwise, but if there is a question whether a person is injured or drunk, the police may bring the patient to hospital for an opinion.

Medical officers to sporting bodies have again been informed that their duties are to render first-aid on the field and then to refer the patients to their own doctors for further attention.

The question of specialist services to lodge members has been considered during the year, but no finality has been reached.

References from the Federal Council concerning the formation of special associations within the profession and the dispensing of proprietary preparations, have been considered, and these matters are dealt with in the reports of the Federal Council published in THE MEDICAL JOURNAL OF AUSTRALIA of March 23, page 377, and September 28, page 423.

It has been decided that for certificates required to cover friendly societies' policy not in operation at the time the Wasley Award was made, 5s. should be charged.

A member was informed that provision for payment for service to sustenance workers could be made by the men receiving sustenance contributing 6d. per week to a fund, which would pay the attending doctor for services rendered at ordinary rates to the extent of the fund's finances.

Certain ophthalmologists wished to establish an intermediate eye service on the lines of that existing in New South Wales, but no finality has been reached.

A member was informed that he was not obliged to give a certificate to a lodge patient receiving treatment from a chiropractor.

The Defence Department has on many occasions sent members of the permanent forces, injured in the course of their duty, to public hospitals, and the matter has been referred to the Federal Council.

Following inquiries it has been ascertained that the grand lodges unanimously insist that lodge certificates shall not be ante- or post-dated.

A request for the restoration of the salaries of medical officers under the Children's Welfare Department has been made to the Ministry, and we have been informed that the matter will receive consideration.

During the year a Public Medical Officers' Association was formed and endeavours were made to keep this body within the British Medical Association. These were unsuccessful, but it is the desire of both associations to work in close cooperation and harmony.

It has been ascertained that practitioners giving emergency attendance, such as blood transfusion *et cetera*, to patients under the care of the Repatriation Department will be adequately remunerated for these special services.

Owing to the extensive area included in the existing North-Western Subdivision, a new subdivision was formed to embrace Mildura, Merbein, Redcliffs, Ouyen and Murrayville.

Hospital Subcommittee.

The subcommittee met thirteen times, and two combined meetings of the Hospital, Organization and Standing Insurance Subcommittees were held. The following were the attendances at the Hospital Subcommittee:

Dr. Embelton	12	Dr. Neville	3
Dr. Birnie	11	Dr. Zwar	3
Professor Allan	9	Dr. Gardner	3
Dr. Hurley	9	Dr. Latham	2
Dr. Morris	9	Dr. Major	1
Dr. Shaw	7		

Agreement having been reached with the Lord Mayor's Fund for Hospitals and Charities, the Hospital Benefits Association of Victoria was established. The Association is a limited liability company controlled by an executive representing contributors, public hospitals, the Pharmaceutical Society of Victoria, the Chamber of Commerce, the Lord Mayor's Fund, the Victorian Railways and the British Medical Association. In spite of early difficulties the Association is increasing its membership each month and now has 9,000 contributors. In return for a weekly contribution of 6d. from married and 3d. from single persons, the Association pays 4s. per day on behalf of a contributor admitted to a public hospital, together with a payment to the medical staff fund of that hospital, and a contributor admitted to an intermediate or private hospital receives 6s. a day towards his hospital expenses and 3s. a day towards his medical expenses up to a period not exceeding twenty-eight days in any consecutive twelve calendar months.

It is urged that all members will join the Hospital Benefits Association, which was established by funds loaned by the British Medical Insurance Company. Apart from the fact that the Hospital Benefits Association is the only contributory scheme conforming to the principles laid down by us, membership is a good insurance.

The question of the disposal of staff fund monies received from the Hospital Benefits Association was referred to the honorary medical staffs concerned. It is proposed at present that these monies should not be distributed among the individual members of the staffs, but should be used for the purchase of special equipment at their discretion, with the approval of the Council.

The question of payment for medical services to cases of infectious diseases treated in country hospitals has been taken up with the Charities Board and the hospitals concerned, but pending the passage through Parliament of the amending Health Bill, action has temporarily been deferred.

During the year all hospitals employing resident medical officers were informed that the employment of students as resident medical officers was illegal under the *Medical Act*, did not meet with the approval of this Association and possibly rendered the hospital liable for the negligence of any such student.

The Federal Council asked for an opinion concerning the proposal to import resident medical officers from England for service in the Hobart Public Hospital. It was the opinion of this Council that if adequate salaries were offered, the positions could be filled from Australia, and it was pointed out that the increase in public hospital patronage created a large demand for the services of resident medical officers. The number of doctors available, outside the residentship stage, was ample for the needs of the community.

It was learned that the committee of one hospital refused to establish facilities for the treatment of venereal diseases. As this is a contravention of the *Venereal Diseases Act*, steps have been taken to adjust the matter.

The alleged existence of agreements between firms and public hospitals for the treatment of employees, in return for contributions made to the hospitals, has been investi-

gated and further action will probably be taken to abrogate any such agreements.

A proposal of the Inspector of Charities that we should approve of the establishment of subintermediate wards where fees below those of the intermediate scale would be charged did not meet with the approval of this Council.

During the year a great deal of work has been done on the out-patient problem and related matters, and a subcommittee is now engaged in drafting a scheme for a compulsory national health service for submission to Branch Convocation early in 1936.

Finance, House and Library Subcommittee.

The Subcommittee met nine times, and the following were the attendances:

Dr. Mollison	9
Dr. Fetherston	9

During the year extensive renovations were carried out at the Medical Society Hall and the office accommodation altered.

The balance sheets of the Branch and of the Medical Society of Victoria will be presented to the monthly meeting in February next year.

Honorary Librarian's Report.

The following report on library reorganization was adopted by Council on March 27, 1935.

1. That the policy as to the class of books and journals to be kept in the library be considered and decided by Council.

2. That a statement showing donations and expenditure on the library be presented yearly.

3. That the Honorary Librarian be a member of Council.

4. That an Advisory Committee shall be formed by the Council, to consist of a representative of each of the following branches of medicine, namely, medicine (including neurology), Surgery (including genito-urinary surgery), diseases of children, ophthalmology, radiology, public health, oto-rhino-laryngology, dermatology, obstetrics and gynæcology, together with a director of the British Medical Insurance Company. The Honorary Librarian will confer with the appropriate individual member of this advisory committee regarding the purchase of books, periodicals *et cetera* bearing on the various branches of medical science.

5. That a revision of the library rules be put in hand.

Already the value of this new system is being demonstrated. A catalogue of the library is being compiled and will shortly be issued to all members.

By purchase and donation 100 new books have been added, and we wish to thank the following for donations: Sir Edward Mitchell, Dr. J. M. Baxter, Dr. Marcel Crivelli, Dr. R. H. Fetherston, Dr. E. L. Gault, Dr. Kent Hughes, Dr. R. R. Wettenhall, Dr. Wu Lien Teh, the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, the Commonwealth Statistician, the Council of Scientific and Industrial Research, the Association of American Physicians, the Australasian Medical Congress, the College of Physicians (Philadelphia), the Henry Phipps Institute (Pennsylvania), the Medico-Legal Society of Victoria, the publishers of *Surgery, Gynecology and Obstetrics*, and the Royal College of Surgeons (England).

Special thanks are due for the help received from the British Medical Insurance Company, a large sum from whose profits is available for the purchase of books for the library.

Legislative Subcommittee.

The subcommittee met on three occasions and the following were the attendances:

Dr. Colville	3	Dr. Green	1
Professor Allan	2	Dr. Roseby	1
Dr. Morris	2	Dr. Wood	0
Dr. Norris	2	Dr. Newing	0
Dr. Davies	1		

Other matters considered during the year were a revision of the rules of the Branch; the Commonwealth *Employees' Compensation Act*, and the proposed rule relating to specialists' services to lodge members.

As the result of representations to the Government, the *Medical Act* has been amended, allowing the Medical Board to dispense, at its discretion, with the one month's notice of intention to register formerly necessary.

Important measures affecting the medical profession were introduced into Parliament. These were the Opticians' and the amending Workers' Compensation Bills. In both cases strong representations were made to Members of Parliament to modify the Bills to provide adequate protection to members of the profession. As the matters are still before Parliament the outcome is not yet known.

Public Health and Public Questions Subcommittee.

The subcommittee met on two occasions and the following were the attendances:

Dr. Dale	2	Dr. Summons	1
Dr. Embelton	2	Professor Allan	0
Dr. Ellis	2	Dr. Brownell	0
Dr. Cahill	1	Dr. Gardner	0
Dr. Norris	1	Dr. Stephens	0
Dr. Roseby	1	Dr. Derham	0

References from the Federal Council, relating to white settlement in the tropics and the establishment of a Therapeutic Investigation Bureau, were considered. Action was taken, following a complaint from the New South Wales Ophthalmological Society, regarding the broadcasting of particulars of squint treatment by a lay person.

Science Subcommittee.

The Science Subcommittee met on three occasions. The following were the attendances:

Dr. Hurley	3	Maj.-Gen. Downes	2
Dr. Norris	3	Dr. McAree	2
Dr. Wood	3	Dr. Stevens	2
Dr. Ellis	3	Dr. Colville	1

The syllabus of scientific meetings for the year consisted of seven monthly meetings, two country branch meetings, five clinical meetings and eight afternoon post-graduate meetings.

The following were the lecturers and the subjects dealt with:

Monthly Meetings.

February: Dr. T. King, "Treatment of Fractures of the Neck of the Femur by Extraarticular Osteosynthesis".
April: Dr. I. Wood, "Anæmia: Its Distribution, Diagnosis and Treatment, with Special Reference to the Anæmias of Childhood".
May: Dr. C. Fitts, "Lung Abscess".
June: Dr. H. Jacobs, "The Investigation and Treatment of Vaginal Discharges".
July: Dr. A. E. Coates, "Surgical Treatment of Vascular Disorders of the Extremities".
August: Dr. E. G. Robertson, "A Clinical Study of Micturition".
October: Dr. R. Southby, "Some Clinical Observations on Blood Pressure and their Practical Application".

Post-Graduate Lectures.

A series of eight afternoon lectures was arranged.

June 6: "Difficulties in Diagnosis and Treatment of Infectious Diseases", Dr. H. McLorinan.
June 13: "Common Obstetrical Problems", Dr. J. Green.
June 20: "Diarrhœa", Dr. I. McLean.
June 27: "The Present-Day Limitations of Radiology as a Diagnostic Aid", Dr. C. MacDonald.
July 4: "Abdominal Emergencies in Children", Dr. D. O. Brown.
July 11: "Corneal Ulcer", Dr. M. Yuille.
July 18: "Thyreoid Enlargements", Dr. G. Syme.
July 25: "Common Mistakes in Diagnosis of Heart Conditions", Dr. F. Niall.
August 1: "Treatment of Common Skin Conditions", Dr. S. W. Shields.

Clinical Meetings.

April: Austin Hospital.
June: Eye and Ear Hospital.
July: Alfred Hospital.
October: Pædiatric Society, at the Children's Hospital.
November: Saint Vincent's Hospital.

Branch Meetings in the Country.

June 15, at Ballarat (Ballarat Subdivision): Dr. A. Trinca, "Appendicitis: Ætiology and Some Points in Treatment"; Dr. W. Griffiths, "Therapeutic Abortion".

November 23, at Horsham (North-Western Country Subdivision): Dr. M. D. Silberberg: "Recognition of the Arrhythmias and their Treatment"; Dr. J. G. R. Felstead: "The Use of Nails in Surgery".

103rd Annual Meeting, British Medical Association.

The outstanding event of the year was the 103rd annual meeting of the British Medical Association, held in Melbourne from September 9 to 14; 1,591 members registered, including 231 from overseas and 388 from other States. The happenings of a memorable week are too recent to warrant a lengthy report, which will be made from another source.

President, British Medical Association, 1935-1936.

Following the death of the President-Elect, Sir Richard Stawell, Sir James Barrett was nominated to the position of President of the British Medical Association, 1935-1936, and was installed at the adjourned annual general meeting held in the Melbourne Town Hall on September 10.

The medical profession in Australia was honoured by the election of Dr. R. H. Fetherston and Dr. W. N. Robertson as Vice-Presidents of the British Medical Association. Honorary membership was conferred upon Sir Edward Mitchell and the late Sir John MacFarland.

Branch Ball.

The President and members of the Victorian Branch acted as hosts at a ball held at Earl's Court on September 12; 1,236 people attended and the ball was an outstanding success.

The Late Sir Richard Stawell.

At a Council meeting held on April 29 the following resolution was passed:

> That the Council place on record its great sorrow at the death of Sir Richard Stawell, the President-Elect of the Association, who has throughout his professional life rendered conspicuous services to the Association and to the medical profession. A member of the Branch since 1893, of the Council from 1896 to 1917, he was editor of the *Intercolonial Medical Journal* from 1898 to 1900, President of the Branch in 1910, a post-graduate lecturer, and has acted on many subcommittees. His outstanding ability as a clinical teacher, with his power of inspiring thoroughness in examination and logical deduction, has been of untold value to the medical school. His appointment as President-Elect of the Association was acclaimed by the members throughout Australia, and the loss of his gracious and commanding personality is keenly felt as a bereavement by the whole of the profession.
>
> The deep sympathy of the Branch is extended to Lady Stawell and family.

The Stawell Memorial Trust Fund.

Contributions received to time of going to press amount to £322, an amount far short of what is required to give effect to the intentions embodied in the resolution under which the Trust was created and the form it was proposed the memorial should take. This opportunity is therefore taken to remind members that the subscription list is still open and that an early remittance of the amount they intend subscribing will be appreciated.

The Late Dr. J. F. Wilkinson.

At a Council meeting held on April 29 the following resolution was passed:

> That the Council record its deep sorrow at the death of Dr. J. F. Wilkinson, and high appreciation of the services rendered by him to the Branch through many years. Joining the Branch in 1887, he had been a member of the Council since 1901, an editor of the *Intercolonial Medical Journal* from 1901 to 1907, and President of the Branch in 1912. He devoted himself unsparingly to the interests of the profession in the Council and its subcommittees, particularly the Ethics and the Organization Subcommittees, always serving as a high example to the members in the conscientious and uncompromisingly honourable manner in which he addressed himself to the problems that arose and giving his best efforts for their solution. He will be sorely missed in the Council and the Branch. The Council extends to Mrs. Wilkinson and her family its deep sympathy in their great loss.

Social.

A golf tournament for the championship of the Branch for a cup presented by Dr. Gerald Weigall was played on the eastern course of the Royal Melbourne Golf Club, Cheltenham, on November 13 and was won by Dr. J. C. Lewis. A handicap event for a cup presented by Dr. D. Roseby, Chairman of the Social Subcommittee, was won by Dr. J. R. Williams. There were 81 entrants and 72 starters. These trophies will be presented at the annual meeting of the Branch. Each of the winners will also receive a miniature cup.

Arrangements have been made for a game of bowls with a parliamentary team on December 13.

Office Reorganization.

The Medical Secretary (Dr. C. H. Dickson) took up his duties on April 1, 1935, and has been fully engaged since in advancing the interests of the profession. Material advantage, it is confidently felt, must accrue to members as a result of his appointment. Dr. Dickson's duties will include the personal canvass of Branch members to gather at first hand directions in which Council can forward the interests of the profession. Members are urged to take full advantage of the opportunity such personal contact offers.

Federal Council.

The Federal Council met in Melbourne in February and September. Full reports of its proceedings appear in THE MEDICAL JOURNAL OF AUSTRALIA of March 23, page 376, and September 28, page 422.

Sir Richard Stawell Oration.

The second oration was delivered by Sir Thomas Dunhill, of London, at the Medical Society Hall, on September 6, the subject of his oration being "Diaphragmatic Hernia, Non-Traumatic".

Second E. H. Embley Memorial Lecture.

The lecture was delivered by Dr. Z. Mennell on September 11, 1935.

The examination for which the Embley Prize Medal is awarded was held on November 21, but at the time of writing the result is not to hand.

George Adlington Syme Memorial Lecture.

Mr. B. T. Zwar delivered the second Syme Memorial Lecture, the subject being "Syme and Medical Education".

British Medical Agency Proprietary Limited.

The Directors desire to report a fairly successful financial year, but owing to the depression and the present shortage of young graduates desiring to purchase prac-

tices, business has not been so great as in former years. Once again members are urged to support this Agency, which exists to insure fair dealing between vendors and purchasers, and whose profits are used for the benefit of members of the Association.

This opportunity is taken to inform members that arrangements are in hand to establish a branch of the Agency at the Medical Society Hall, where particulars of practices will be available and all classes of agency business transacted.

C. H. MOLLISON,
Chairman of Directors.

British Medical Insurance Company of Victoria Limited.

The British Medical Insurance Company is now in its tenth year. The statistics of the Company, after a decade of dealings exclusively with members of the British Medical Association, provide a very useful and interesting gauge for the comparison of this sectional business with insurance results obtained from companies dealing with the general public. The results have justified the founders' belief that they could insure for members of the profession at rates of premium considerably lower than the average and still preserve a reasonable margin of profit.

The Company introduced a comprehensive motor car policy, embodying benefits specially useful to members, and they were not slow to recognize its value. Year by year the Company increased its range of activity and now has substantial support from most practitioners. The aim is not to make large profits. Present scale of premiums provides a surplus from which it was possible, in addition to giving welcome assistance to the Medical Society of Victoria (£500 *per annum*) to defray the cost of the Society's administration expenses, to enable it from time to time to give generous donations for the improvement of the library. Recently, funds were required for establishing the hospital contributory scheme. There was no source, apart from levy, from which to draw the necessary money. Nearly £1,200 was advanced by the Company.

The Council appeals to members to give the Company all possible support. Fire and general insurance business is particularly sought at the present time, in order to offset the greater cost of motor car repair claims. The introduction of the elaborately fitted streamlined car of today has increased the difficulty in making ends meet upon the very low rates of premium charged.

There is no doubt that members share in all profits, which are used for purposes essential to the existence of the British Medical Association.

Members are informed that a branch of this Company has been established at the Medical Society Hall, where all classes of insurance may be arranged.

The Melbourne Permanent Post-Graduate Committee.

During the past twelve months the Committee purposely reduced its activities, realizing that members of the Branch would be fully occupied with the annual meeting of the British Medical Association. For this reason no special series of lectures and no general refresher course were held. The annual obstetrics course was also deferred.

During the year lecturers, under arrangements made through the Committee, visited various country centres, including Yallourn, Port Fairy, Portland and Mooroopna. Dr. B. M. Sutherland was appointed to act in conjunction with Dr. J. P. Major as a representative of the Branch Council on the Committee. Dr. V. Hurley, as Convener of the Science Subcommittee, is *ex officio* a member.

Congratulations.

During the year under review Council had pleasure in conveying congratulations to: the President, on his promotion to the rank of Major-General; Dr. L. S. Latham, on his election as Warden of the University Convocation; Dr. B. T. Zwar, on his election to the University Council; Dr. W. E. Jones, on his inclusion in the New Year's Honours list; and Dame Jean Connor, on her inclusion in the King's Birthday Honours list.

Dr. Derham was thanked for his services to the Branch as Editor's Representative in Victoria of THE MEDICAL JOURNAL OF AUSTRALIA.

The Victorian Medical Benevolent Association.

I have much pleasure in giving a brief account of the use made by the Committee of the Victorian Medical Benevolent Association of the gifts made through the cooperation of the Council of the British Medical Association.

During the year we have been able to befriend seven persons. Apart from substantial help given to special cases, small grants have been made from time to time to meet urgent needs of medical men or their dependants.

The report and balance sheet will be found in THE MEDICAL JOURNAL OF AUSTRALIA of August 10, 1935.

The Committee desires that its work should be more widely known. It endeavours to carry out its benevolence, not as a charity, but as a manifestation of the kindly feeling and goodwill of medical men toward their brethren who are in need. It asks members of the British Medical Association still to include in their subscription to the Association the 5s. which makes them members also of the Victorian Medical Benevolent Association.

EDWARD L. GAULT,
Honorary Secretary.

Reports of Subdivisions.

Metropolitan Subdivisions.

Eastern Suburbs Subdivision.—The annual meeting was held in the X ray block of Saint George's Hospital on December 12, 1934, when the following office-bearers were elected: President, Dr. Elliott True; Executive: Dr. G. W. Ashton, Dr. R. L. Forsyth, Dr. W. S. Laurie and Dr. R. F. Watson. Dr. Newport White was reelected Honorary Secretary.

The chief activity of the subdivision during the year has been in connexion with the proposal to rebuild Saint George's Hospital. Plans of the proposed building were submitted to the executive and were later laid before a well attended general meeting for discussion and revision. It is felt that within the next few months this hospital, which has served so well in the past, will offer doctors and patients of this district the advantages of a conveniently situated first class community hospital.

NEWPORT B. WHITE,
Honorary Secretary.

Northern Suburban Subdivision.—There is no news for inclusion in the annual report of the activities of this subdivision.

W. F. BROWNELL,
Honorary Secretary.

Western Suburban Subdivision.—There is no report to make of this subdivision.

M. J. COSTELLOE,
Honorary Secretary.

Central Subdivision.—There is no report to make of this subdivision.

IAN WOOD,
Honorary Secretary.

South Central Suburban Subdivision.—The annual meeting was held at the residence of the President, Dr. W. Lemmon, on October 25. There was a good attendance. Dr. Danziger, of Port Melbourne, was elected President, and Dr. F. McAree was reelected as Honorary Secretary for the ensuing year. A presentation of an inkstand was made to Dr. C. H. Anderson, late of Albert Park, who has retired from practice.

FRANCIS E. MCAREE,
Honorary Secretary.

Country Subdivisions.

Goulburn Subdivision.—Two meetings only were held during the year:

1. Annual meeting, at which the following office-bearers were elected: President, Dr. F. W. Grutzner; Vice-President, Dr. R. O. Mills; Honorary Secretary, Dr. A. L. Bennett; Committee, Dr. J. A. Kennedy and Dr. N. Parker; Representative on Council of British Medical Association (Victorian Branch), Dr. S. F. Sutherland; Representative on Advisory Board of Mooroopna Hospital, Dr. F. W. Grutzner; Representative on Shepparton and District Ambulance Committee, Dr. Y. Gorr.

2. A post-graduate meeting, at which Mr. Thomas King and Dr. L. E. Hurley were the lecturers. This meeting was arranged through the courtesy of the Melbourne Permanent Post-Graduate Committee.

ANNIE L. BENNETT,
Honorary Secretary.

South-Western Subdivision.—Dr. J. Le M. Kneebone was nominated as representative on the Council. Other office-bearers continue to hold office for a further period of twelve months: President, Dr. S. C. Fitzpatrick (Hamilton); Vice-Presidents, Dr. Weir (Terang), Dr. Littlewood (Warrnambool); Honorary Secretary and Treasurer, Dr. P. B. Houghton (Hamilton); Committee, Dr. Buzzard and Dr. Holmes (Warrnambool), Dr. McInnes (Mortlake), Dr. Francis (Port Fairy), Dr. Morlet (Camperdown).

P. B. HOUGHTON,
Honorary Secretary.

Bendigo Subdivision.—The principal activities of the subdivision were directed towards a satisfactory solution of the public hospital problem in the Base Area. Following the establishment three years ago of a contributory fund, with payment towards nursing attention in any registered hospital, a medical fund was launched, providing substantial payment towards operation fees, midwifery or ordinary medical attention whilst in hospital. With this double provision available at a moderate cost of 1s. per week, it was felt that some pressure was justifiable to discourage persons with even moderate means from taking advantage of the honorary medical services of public hospitals. Following representations made to the Board of the Bendigo Base Hospital, a really strict inquiry as to means is now made before any person is admitted to the public section of the hospital, whilst the practice of admitting patients to the beds of a particular honorary on request has been discontinued. The gratifying result has been a steady growth in membership of the medical fund amongst those who formerly made no attempt to provide for medical attention for themselves or families, and, moreover, admissions to the public section of the hospital are now practically confined to the genuine indigent sick.

D. W. NEVILLE,
Honorary Secretary.

Geelong Subdivision.—This subdivision comprises some thirty active members, with an average attendance at meetings of twenty. During the year four general meetings and one special meeting were held. One clinical lecture was given by Dr. Geo. Cole: "The Work of the Public Health Department Tuberculosis Bureau". Dr. A. R. Morton showed appropriate X ray films to illustrate the subject.

KENNETH C. PURNELL,
Honorary Secretary.

Ballarat Subdivision.—During the year a very successful Branch meeting was held, which representatives from Melbourne and surrounding districts attended. This took the form of a clinical afternoon at the Ballarat Hospital, at which local members presented a series of cases for discussion. A dinner followed, after which papers were read by Dr. A. Trinca, of Melbourne, and Dr. Griffiths, of Ballarat. The Ballarat Hospital Clinical Society, under the presidency of Dr. Sloss, has had regular meetings at the hospital throughout the year, at which a series of cases has been shown and subjects of general interest have been discussed by members. Local members have been particularly concerned to insure that the efforts of the Hospital Committee to form a hospital and nursing benefit scheme will comply with the accepted hospital policy of the British Medical Association.

C. E. RICHARDSON,
Honorary Secretary.

North-Western Subdivision.—The first Branch meeting to be held at Horsham took place on the afternoon and evening of November 23. Afternoon, clinical cases; evening, papers and discussion. Dr. M. D. Silberberg: "The Arrhythmias and their Treatment"; Dr. G. R. Felstead: "The Use of Nails in Surgery". Venue of both meetings, Base Hospital, Horsham.

H. W. CHARLTON,
Honorary Secretary.

Reports of Sections.

Anæsthesia.

Three meetings have been held during the year. There are fourteen members of the section, Dr. F. W. Green being the President.

ERIC GANDEVIA,
Honorary Secretary.

Ear, Nose and Throat.

This section has held five meetings during the year. Mr. John Shaw is President for the year 1935-1936.

ERIC GUTTERIDGE,
Honorary Secretary.

Obstetrics and Gynæcology.

Including the annual meeting, three well attended and interesting meetings have been held during the past year. Dr. E. R. White was elected President for the ensuing year and was installed by the retiring President, Dr. R. W. Chambers. Since the inception of the section Dr. White has acted as Honorary Secretary, and has been largely responsible for the increase in membership to its present total of 41.

Dr. P. Brett was reelected Honorary Treasurer, and Dr. G. B. Bearham, Honorary Secretary.

G. B. BEARHAM,
Honorary Secretary.

Radiology.

This section held its usual monthly meetings. In May several members visited Canberra, as delegates to the Cancer Conference; in June a series of films was shown; in July and August we were favoured by lecture demonstrations by Dr. Graeme Robertson and Dr. Clive Fitts; in September problems were discussed with overseas and interstate delegates to the 103rd annual meeting; in October Dr. J. B. Colquhoun gave a lecture demonstration on the "Clinical Radiology of Bone and Joint Diseases"; and in November Professor A. E. Barclay addressed the section. The usual hospital demonstrations were given at the scientific meetings, and thanks are due to Dr. Praagst, Dr. Macdonald, Dr. Stephens, Dr. Mackay, Dr. Crisp and Dr. Speeding. The Diploma of Medical Radiology has been instituted at the Melbourne University, and in its first year four candidates are presenting themselves for examination. Office-bearers were: Chairman, Dr. J. O'Sullivan; Honorary Treasurer, Dr. F. G. Stephens; Honorary Secretary, Dr. Keith H. Hallam.

The annual report is submitted on behalf of the Council.

RUPERT M. DOWNES, President.
J. P. MAJOR, Honorary Secretary.

PRESENTATION OF GOLF TROPHIES.

The championship golf trophy, presented by Dr. G. Weigall, had been won by Dr. J. C. Lewis; the trophy, which will be held for one year, was presented to Dr. Lewis.

The handicap trophy, presented by Dr. D. Roseby, had been won by Dr. J. R. Williams; the trophy, which will be held for one year, was presented to Dr. Williams.

PRESIDENT'S ADDRESS.

The retiring President, Dr. R. M. Downes, then delivered his address (see page 73).

VOTES OF THANKS.

A vote of thanks to the retiring President for his address and for his services to the Branch during his year of office was carried on the motion of Dr. Walter Summons, seconded by Dr. J. Newman Morris.

A vote of thanks was also accorded to the retiring members of the Council, Dr. Ian J. Wood, Dr. J. H. Shaw and Dr. G. A. Birnie.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held at the Alfred Hospital, Melbourne, on July 17, 1935. The meeting took the form of a series of demonstrations by members of the honorary staff of the hospital and the staff of the Baker Institute. Part of this report appeared in the issues of December 14, 1935, and January 11, 1936.

Anomalies of Position and Movement.

DR. LEONARD COX showed several patients illustrating anomalies of position and movement of neurological interest.

A female patient, aged thirty years, at the age of seven years had developed a hemiparesis suddenly. She had improved since, but had definite athetosis of the left hand and a gross spasm of the flexor muscles of the hand and forearm. This seemed to be produced by anything which touched the palmar surface of the hand, and could not be relaxed voluntarily. The musculature of the athetotic arm was powerful and better developed than that of the unaffected side. No evidence of a pyramidal tract lesion was present other than a slight diminution of the superficial abdominal reflexes on the affected side. A Hunter-Royle operation had been performed at the age of nineteen years without any noticeable improvement. The patient believed that the excessive "tonic innervation" of the flexor muscles had increased since. The excessive flexor spasm had been treated very satisfactorily by Dr. C. H. Hembrow, and the result was that the arm, though still athetotic, was very useful.

A female patient, aged seventy-six years, at the age of six years became unconscious suddenly and developed a right-sided paralysis and aphasia. She had improved steadily to the age of eighteen years. Athetosis of the right arm and leg had developed, with severe flexor spasms and inability to relax the grip. Cervical and lumbar sympathectomy were performed in 1927 without benefit. Evidence of involvement of the right pyramidal tract was present, although only a paresis was evident. At present she was undergoing treatment for the flexor spasms.

A female patient, aged fifty-five years, was said to have had a "stroke" at the age of eighteen months. The left arm was stated to have been smaller than the right and to have been flexed. In July, 1934, she developed pain in the upper part of the arm, of so severe a grade that the arm was disarticulated and removed. She still suffered severe pain, not only in the shoulder and back, but in the missing arm. She felt that the arm was continually moving about, and she could identify the position of any part. Dr. Cox felt that the pain in this "phantom" limb and the sensation of movement must be central in origin. The foot on the same side exhibited athetosis.

A female patient, aged twenty-eight years, seven days after birth had developed right-sided "fits", which had persisted to the age of seventeen years. They then disappeared after an attack of diphtheria. At present she exhibited some rigidity of the right arm, with athetosis; the only evidence of a pyramidal tract lesion was the presence of clonus of the right knee.

A male patient, aged thirty-two years, twelve years earlier had fallen from a horse and had been unconscious for nineteen days. Although the arm had remained quite strong, he had dragged the left foot slightly ever since. If he opened the hand, he was unable to shut it voluntarily; if he closed it, he could not open it. By stroking the hand, however, it opened and, moreover, he did not experience any difficulty in doing manual work. As there was no neurological evidence of involvement of the pyramidal tract, and owing to the bizarre feature, the condition was considered to be functional. In support of this view the arm had responded extremely well to hypnotic treatment, but there was a tendency to relapse.

Treatment of Athetotic Arms.

DR. C. H. HEMBROW demonstrated his method of treating athetotic arms and patients who were unable to relax the hand grasp. Initially the dominant muscles, such as the flexor group, were by degrees over-stretched until they weakened; simultaneously the weaker group was shortened. The process used was one of light plaster splinting, constructed from plaster bandages built around a core of cotton wool. The digits were extended in the first instance by the application of a palmar mould with the wrist flexed. Later this same mould was joined to a volar slab with the wrist hyperextended. At that stage voluntary exercises of the various intrinsic muscles were introduced. Although athetosis could not be cured, a useless hand might be transformed into a moderately useful one.

Tumours of the Brain.

DR. H. C. TRUMBLE and DR. LEONARD COX showed a series of patients who had had brain tumours removed which had been associated with abnormal positions of the head. This demonstration was illustrated by cinematograph.

A male patient, aged forty-three years, had come under observation two years previously with evidence of the presence of a cerebello-pontine angle tumour. He had a left cerebellar syndrome, together with deafness in the left ear and hypoæsthesia of the left fifth cranial nerve. Of great interest was the presence of a very definite torticollis, which had been present from early childhood. At operation a large mass of white avascular cholesteatoma (pearly tumour) was removed with great relief of symptoms. It was explained that as a cholesteatoma was a type of dermoid, this tumour must have been present at birth and must have been related to the torticollis, which represented the so-called "cerebellar" position of the head.

Another patient, a girl of fourteen years, who was not presented, had an abnormal position of the head for many years before the occurrence of the tumour signs. At operation Dr. Trumble found a large cerebellar cyst and removed a flattened mass of fibrillary astrocytoma from the wall. A substantial relief of symptoms had followed.

A female patient, aged twenty-six years, had been unsteady for two years. Six months earlier she had shown definite signs of a left cerebello-pontine angle tumour, associated with impairment of the cochlear division of the eighth cranial nerve, the fifth nerve and the facial nerve. The position of the head was inconstant; sometimes it was deflected to one side, sometimes to the other. At operation a portion of an extremely tough perineural fibroblastoma was removed. A second operation was to be performed, but, as the patient's condition was still improving, it was held in abeyance.

A female patient, aged forty-seven years, had suffered from epileptic convulsions for at least eleven years. During the last few years she had been gradually losing the use of the right arm and leg, and also suffered from an aphasia. She showed, prior to operation, evidence of a parietal lobe lesion, associated with a hemiparesis. Calcification in the region of the posterior part of the left frontal lobe was visible in the skiagram. A very large fibrillary astrocytoma had been removed ten days before the meeting. It was extremely well defined and occupied much of the parietal and post-frontal regions. It was remarkable that this

patient, instead of showing the usual increase of symptoms after removal, had shown definite improvement in movement, in speech and in intellectual capacity on the next day. She was already extraordinarily well and was ambulatory. The prognosis was considered to be good, because the tumour was of low malignancy and appeared to have been removed in its entirety.

Pathological Specimens of Neurological Interest.

DR. CAMPBELL DUNCAN showed several specimens of neurological interest.

A well defined hæmangioblastoma of the cerebellum had been removed in its entirety by Dr. Trumble from a man, aged twenty-six years. The patient had not presented any cerebellar signs, but only those of a severe internal hydrocephalus. Cerebellar signs had followed its removal, but were rapidly abating.

A section prepared from fragments of a large craniopharyngeal cyst, which had originated in the pituitary fossa and which had been removed by Dr. Trumble four weeks previously, was shown. The patient, a man, aged twenty-six years, had exhibited optic atrophy, gross drowsiness and mental signs. After operation he was sleepless, but was rapidly approaching normality when he was discharged from hospital three weeks after operation.

A section of a calcified secondary carcinoma removed at operation by Dr. Trumble was shown. This had been visible in the skiagram and had been a unique case. The patient, a woman, aged fifty-three years, died shortly after operation. It was found that she had an enormous metastatic growth in the mid-cerebellar region, together with what was thought to have been a primary bronchial carcinoma. However, fifteen years earlier, one of her breasts had been removed. A restudy of this case by Dr. Rupert Willis showed that the sections of the metastatic growths were identical with that of the primary growth; there was, then, little doubt that the lung tumour too was of metastatic origin.

The brain and the skull of a young man were shown by Dr. Duncan. The patient had died in *status epilepticus* in the course of treatment for cerebro-spinal syphilis. The skull showed a gross nodular syphilitic osteitis of a sclerotic type. Beneath there was a definite pachymeningitis with some invasion of the cortex. It seemed probable that the syphilitic process had commenced in the bone and had spread to the meninges.

Dr. Duncan also showed the cerebellum of a woman, aged fifty-five years. She had suffered from progressive cerebellar disease for more than four years. The cerebellum was small and showed a great loss of Purkinje's cells in the cortex of the quadrangular lobules. Although the case had not yet been studied fully, it seemed to be an example of the rare "chronic parenchymatous cerebellar atrophy".

Microscopical Preparations.

DR. RUPERT A. WILLIS showed the following microscopic preparations: (i) a nerve ganglion in an ovarian dermoid; (ii) nerve cells in central nervous tissue, in an ovarian dermoid; (iii) patches of neuroglia with astrocytes, stained by Cajal's gold-sublimate method, in a teratoma of the testis; (iv) striated muscle fibres in a teratoma of the testis; (v) striated muscle fibres in a teratoma of the retro-peritoneum; (vi) details of tooth structure in a tooth in a teratoma of the anterior mediastinum.

Correspondence.

ANTRAL INFECTION OF DENTAL ORIGIN.

SIR: I should like to express general agreement with the opinions voiced in your issue of January 4 by Dr. A. L. Clowes concerning antral infection of dental origin.

In the last paragraph of his letter, however, he states: "but if infection is gross or of long standing it may be necessary to perform the Caldwell-Luc radical antrum operation, sometimes with gentle curettage of the dental fistula to promote closure". I have seen a number of cases in which this treatment was carried out, but in which the "fistula" remained widely patent or even increased in size. My experience would indicate that wherever the opening into the mouth is one centimetre square or larger, closure by plastic operation coincident with nasal antrostomy (if deemed necessary), but prior to a Caldwell-Luc operation, is preferable. In this regard gentle irrigation through the tooth socket for one or two weeks is often an advantageous preparation for the plastic procedure. Furthermore, if ineffectual curettage is attempted, plastic reconstruction is rendered more difficult. Ideally, of course, plastic surgery should only be performed in a clean field, and to this end it may be held that the Caldwell-Luc operation should be performed first, but it must be remembered that the healing is primarily on the oral side of the antral opening and that plastic flaps in the mouth generally cope quite satisfactorily with the oral bacteria.

Yours, etc.,

ARTHUR AMIES,
D.D.Sc. (Melb.), F.R.A.C.S. (L.O.).
The Australian College of Dentistry,
193, Spring Street,
Melbourne,
January 7, 1936.

TREATMENT BY OLIVE OIL EMULSION.

SIR: It is regrettable that Professor Davies should have sensed any personal tone in my letter of December 7, 1935. None was intended, as I merely dealt point by point with his attack.

The guarantee to cure puerperal septicæmia if treatment by intravenous emulsion is commenced early enough must not be labelled "preposterous" until he proves or disproves the claim. The guarantee still stands.

Now may I crave space to deal with the so-called "subtle misrepresentations".

1. In the volume "Technical Aspects of Emulsions" (London, A. Harvey, pages 5, 6, 7, 8), *The British Medical Journal* of March 10, 1934, page 424, *The British Medical Journal* of March 24, 1934, page 557, and the volume "The Theory of Emulsions and their Technical Treatment", by William Clayton (third edition, London, J. and A. Churchill, Limited, 1935), all contain references to the therapeutic use of intravenous olive oil emulsion, and the following papers deal specifically with this mode of treatment: Chierici, *Arch. ital. Sci. farmacol*, I, 305 (1932); Scheffer, *Arch. exptl. Path. Pharmakol.*, 124, 334 (1927); Scheffer and Bodo, *ibidem*, 124, 326 (1927); Saxl and Donath, *Wien. Arch. inn. Med.*, 13, 7 (1927); Markowitz and Mann, *Am. J. Physiol.*, 93, 521 (1930); Peretti, Reale and Ciglia, *Boll. Soc. ital. Biol. Sper.*, 7, 984 (1932); *Arch. ital. biol.*, 90, 59 (1933); Oliaro, *Z. ges. exptl. Med.*, 91, 366 (1933), *cf.*; Kuriyagawa *et al.*, *Biochem. Z.*, 276, 336 (1935); Nomura, *Tohuka J. Exptl. Med.*, 12, 247, 389, 497; 13, 51 (1929), *cf.* Baba, *ibidem*, 17, 154, 274 (1931); Rony and Mortimer, *Endocrinology*, 15, 388 (1931).

2. In his letter of November 23, 1935, Professor Davies stated: "The adsorption of toxins may be a plausible hypothesis but lacks adequate proof." Again he wrote: "One finds very little reason to believe that toxins actual or hypothetical are selectively adsorbed by an emulsion of olive oil." Now in his letter of January 4, 1936, we find: "The experiments of Myers and of Fraser and Walsh prove quite satisfactorily that oil emulsions can neutralize the effects of toxins when the oil and toxin are mixed *in vitro*." This needs no comment.

3. Professor F. G. Donnan, C.B.E., M.A., D.Sc., F.R.S., may not be qualified to express an authoritative opinion on a purely therapeutic matter, but he at least knows enough to realize a scientist in any centre of learning must stand or fall by what he publishes. He knew V. G.

Walsh was Lecturer in Pharmacology at Saint Mary's Hospital Medical School for years, as well as being a distinguished research worker in the Physiology Department of the University of London. Naturally he does not regard the communication of Walsh and Fraser with the report and temperature chart of a case of pneumonia treated by intravenous olive oil emulsion as a "subtle misrepresentation".

4. The Professor's description of fat absorption from the bowel is not universally accepted by physiologists. Modern research work proves the formation of an emulsion in the intestine. This emulsion, protected by colloids such as mucin, cholesterin *et cetera*, is absorbed selectively by the villi near the middle of the small intestine and is poured into the lacteals. This phase occurs half to one hour after a fatty meal. Fat emulsion appears in the thoracic duct in half to one and a half hours; chylomicrons appear in the blood stream in one to two hours, not in three or four hours, as the Professor states.

5. As regards the size of the chylomicrons the Professor again errs. They are mainly in the diameter range of 0·5 to 1·0 micron. The general average size increases—some to 1·5 microns—at the height of digestion and absorption. Walsh proved that any globule larger than 0·5 micron did not adsorb toxin.

6. In this paragraph Professor Davies contradicts his previous acceptance of the adsorption of toxin theory. In his eagerness to agree with the editor of *The British Medical Journal* he forgets his recent conversion.

Incidentally, work carried out as far back as 1927 and up to the present time proves the effect of intravenous emulsions on free circulating toxins, on fever, on the duration of disease, and on every aspect of the disease process — biochemical, cytological and bacteriological. Space does not permit a *résumé* of these proofs, but I am willing to supply the references to anybody interested.

Yours, etc.,

A. J. FITZGERALD.

"Craignish",
Macquarie Street,
Sydney,
January 8, 1936.

X RAY TREATMENT OF ACNE.

SIR: I would like to say something regarding the controversy which has arisen over the treatment of acne by X rays.

For some years now I have been using with success the same technique as that described by Dr. Belisario, and after reading Dr. Molesworth's second comment on Dr. Belisario's reply to his criticism, I feel compelled to make the following remarks in the interests of dermatologists employing this technique.

If Dr. Molesworth were sincere in his desire to sound a note of warning, there was, in my opinion, which is shared by other members of the same hospital staff (of which I also am a member), a rather more seemly way of doing so than to endeavour to publicly descredit the work of a colleague on the same hospital staff as himself.

In paragraph three of Dr. Molesworth's second comment, he states that he does not subscribe to the doctrine that one erythema dose of X rays over a large area like the face in a young individual is very much more likely to be followed by later sequelæ than eight quarter doses at weekly intervals. He therefore claims that the rest of Dr. Belisario's argument, based on this, falls to the ground. On the contrary, Dr. Belisario's argument stands undisputed by all but Dr. Molesworth, as what he (Dr. Belisario) states in this instance is generally recognized as correct.

In the same paragraph he accuses Dr. Belisario of playing to the gallery, and quotes as an example that he leaves the readers to infer that he (Dr. Molesworth) does not make allowances for secondary radiation in treating large areas when his measurements are made by ionometer, which registers secondary as well as primary radiation. In Dr. Belisario's original paper he stated that he himself did not make allowance for secondary radiation in the actual delivery of each dose, so that in the delivery of eight quarter erythema doses he actually delivered two and one-half erythema doses, and only suggested in his reply that if Dr. Molesworth did the same (without inferring that he did) there was an even greater risk in delivering one three-quarter dose to the face.

In the fourth paragraph Dr. Molesworth states that until Dr. Belisario can prove that the rate of multiplication and the number of mitotic figures are greater in the sebaceous gland cells than in the basal layer of the epidermis, no credence can be given to his bald and unconvincing statement that X rays exert a more selective effect on sebaceous gland cells than on those of the basal epidermal layer. I would point out to Dr. Molesworth that he made the "bald and unconvincing statement" in the first place that the cells of the basal layer of the epidermis were damaged not less than those of the sebaceous glands by X rays, without producing the same proof which he requires from Dr. Belisario, and despite the fact that clinical results strongly support Dr. Belisario's contention.

In paragraph five Dr. Molesworth leaves readers to infer that there is no such thing as idiosyncrasy to X rays. This requires no argument, as everyone knows that there is practically no treatment known to medicine which will not discover an idiosyncrasy in an occasional individual. Also, for example, fair-complexioned people are always more susceptible to X radiation than dark-complexioned people.

With regard to paragraph six, I also know of no practising dermatologist who uses Dr. Molesworth's treatment for acne as mentioned in THE MEDICAL JOURNAL OF AUSTRALIA in 1926, and do not agree with him that perhaps it is the workman and not the tool to blame, if good results are not obtained by its use. Despite the fact that it has already been pointed out to him that he said himself this treatment only held acne in check until the acne age was over (which, in my experience, is nearer thirty than twenty-two), he still claims it is the method of choice for the cure of acne. I am sure the general practitioners mentioned by Dr. Molesworth would not be offended if I suggest to Dr. Molesworth that perhaps specialists in diseases of the skin are better able to judge the merits of a skin treatment than general practitioners.

In his second last paragraph Dr. Molesworth states that MacKee's book is now considerably out of date, and follows with the astounding statement that his methods of denoting the doses and qualities of radiation he uses are very defective. He would be wise to do as Dr. Belisario suggested and peruse the literature a little more closely before making statements of this kind. He would see there that MacKee is still using the same routine of treatment for acne and checking his clinical erythema with the most modern of dosimeters, including the "Victoreen", which has given the most accurate results of all. MacKee's statistics are as good as ever, and have been confirmed by others, such as Andrews, Hazen *et cetera*, all of whom are in a better position to judge the merits of X radiation for acne than Dr. Molesworth, as has already been pointed out.

In conclusion Dr. Molesworth states, "while not upholding Roxburgh (1934 edition) and McKenna (1933 edition) as authorities on X ray treatment", that Dr. Belisario will find that they do not agree with him with regard to the total amount of radiation permissible in the treatment of acne. It seems to me rather strange to quote two writers on an X ray question when he himself states that he does not consider them to be authorities on the subject. In any case, he cannot have read McKenna very carefully, as I would refer him back to page 430, paragraph three, where McKenna states: "As the aim is to produce a gradual temporary atrophy of the sebaceous glands, it is better to proceed gradually and administer successive fractional doses rather than a massive dose at a single sitting". This sentence definitely agrees with Dr. Belisario's contention about the large doses. In the next sentence McKenna states: "A moderately soft tube should be used with a spark gap of 3–4 inches, and ½–¾

pastille dose should be administered once a week for four to six weeks." If Dr. Molesworth will multiply ½ by 6, I think he will find that it amounts to a total of two full doses, which is the quantity of radiation advocated by Dr. Belisario.

Yours, etc.,

185, Macquarie Street, Sydney, January 8, 1936.

GEORGE RAFFAN.

Obituary.

LEONARD REDMOND.

WE regret to announce the death of Dr. Leonard Redmond, which occurred on December 28, 1935, at Charters Towers, Queensland.

NORMAN CHARLES BARBER.

WE regret to report the death of Dr. Norman Charles Barber, which occurred on December 25, 1935, at Alphington, Victoria.

Diary for the Month.

JAN. 22.—Victorian Branch, B.M.A.: Council.
JAN. 24.—Queensland Branch, B.M.A.: Council.
FEB. 4.—New South Wales Branch, B.M.A.: Organization and Science Committee.
FEB. 5.—Western Australian Branch, B.M.A.: Council.
FEB. 5.—Victorian Branch, B.M.A.: Branch.
FEB. 6.—South Australian Branch, B.M.A.: Council.
FEB. 7.—Queensland Branch, B.M.A.: Branch.
FEB. 11.—New South Wales Branch, B.M.A.: Executive and Science Committee.
FEB. 14.—Queensland Branch, B.M.A.: Council.
FEB. 18.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 19.—Western Australian Branch, B.M.A.: Branch.

Medical Appointments.

Dr. F. G. Donovan has been appointed, pursuant to the provisions of the *Workers' Compensation Act*, 1928, a Certifying Medical Practitioner at Melbourne, Victoria.

* * *

Dr. F. G. Tuddenham has been appointed, pursuant to the provisions of the *Workers' Compensation Act*, 1928, a Certifying Medical Practitioner at Smythesdale, Victoria.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," pages xvi, xvii. and xviii.

AUSTIN HOSPITAL FOR CANCER AND CHRONIC DISEASES, HEIDELBERG, VICTORIA: Honorary Officers.
CAMOOWEAL HOSPITAL, CAMOOWEAL, QUEENSLAND: Medical Officer.
MENTAL HOSPITALS DEPARTMENT, PERTH, WESTERN AUSTRALIA: Assistant Medical Officer.
NORTH CANTERBURY HOSPITAL BOARD, NEW ZEALAND: Medical Superintendent.
ROYAL NORTH SHORE HOSPITAL OF SYDNEY, NEW SOUTH WALES: Honorary Assistant Physician.
THE UNIVERSITY OF MELBOURNE, VICTORIA: Beaney Scholarship in Pathology, Lectureship in Pathology.
VICTORIAN EYE AND EAR HOSPITAL, MELBOURNE, VICTORIA: Resident Surgeons.
WESTERN AUSTRALIAN PUBLIC SERVICE: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Chillagoe Hospital. Richmond District Hospital, North Queensland. Members accepting LODGE appointment and those desiring to accept appointments to any COUNTRY Hospital, are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

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